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TEACHING READING IN THE CURRENT EVENTS CLASS

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Editor's note: There is a growing interest in reading at the high school level. The author presents data to show that the reading efficiency of high school pupils can be improved through special instruction in current events reading.

FOLLOWING the publication of *The Teaching of Reading: A Second Report,*[1] the writer conducted an experiment to discover what progress in reading skills average high school students might make if introduced to modern reading techniques in connection with their study of current events.

The publishers of a graded series of classroom papers were glad to coöperate in such a project, and the experiment has now proceeded for three years, in three separate stages, the last being of most importance. The papers employed are eight pages each. Reading guidance exercises covering the principal articles appearing in the first seven pages have occupied half or more of the eighth page of each paper during the period of the experiment.

Preparation of the exercises has been under the supervision of Miss Eleanor M. Johnson, who has planned them so as to cover systematically the five basic reading skills: comprehension and interpretation of facts, vocabulary development, organization, reproduction, and speed. The skills to be emphasized from week to week have varied with the nature of the articles covered, some stressing visualization, others the finding of main ideas, or reading to get details, etc. The exercises were checked against a list of forty skills and sub-skills needed for reading on the high school level, so as to give ample variety and a balanced program.

Miss Rosalie F. Greenwood, formerly in charge of tests and measurements for the Board of Education at Lakewood, Ohio, assisted in preparing that list, studying for the purpose at the University of Chicago during the summer of 1937, and thereafter assisting Miss Johnson in preparing the exercises used.

[1] Thirty-Sixth Yearbook, Part I. National Society for the Study of Education. Bloomington, Illinois: Public School Publishing Co., 1937.

The first stage of the experiment ran from April to June, 1937, and was confined to the paper, *Every Week*. Tests used were Master Achievement Tests, Forms 8A and 8B, given as end-tests at the beginning and end of a ten-week period—all that remained of the school year.

At Harding Junior High School, Lakewood, Ohio, through coöperation of Superintendent Bowman and Principal Dickey, seven classes took end-tests, six of the classes carrying out the exercises during the intervening ten weeks. At Montclair, N. J., under the direction of the Upper Grade and Junior High Supervisor, Ethel M. Orr, six classes of varying I.Q's took part in the whole experiment, some under the direction of experienced teachers, others under the direction of novices. In both cities, comparable results were secured: more than two-thirds of the pupils tested showed measurable gains in reading, some of them showing progress that would ordinarily be attained in two or two and one-half years. The Lakewood control class which took the tests but *not* the exercises showed, in the words of Mr. Dickey, "only such progress as would reasonably have been expected from increased familiarity with the mechanics of the test." The Montclair experiment demonstrated that the program was workable and produced results even with relatively inexperienced teachers.

In a rural situation at Etna, Ohio, where a slightly different experiment was conducted by Superintendent M. Z. Pond, 75 percent of the pupils showed gains in the reading test and 80 percent of those showed gains in other content subjects (English, history, and arithmetic), in supplemental parts of the tests.

As the first stage of the experiment was both too brief and too limited to be convincing, the program was expanded, in the fall of 1937, to include a larger number of schools. To reach 7th and 8th grade pupils, the exercises were introduced in *Current Events*.

During the winter of 1937-38, standardized end-tests in reading were administered among a large number of subscribers to *Current Events* and results were tabulated from 293 classes, representing 6,345 students in 7th, 8th, and 9th grade classes. Form 7A was given in October, 1937, and Form 7B in January, 1938. The results of this experiment were as follows:

1,814	pupils, or 28.58%	made no progress or small losses
2,543	pupils, or 40.07%	made gains of .1 to .5 year
1,988	pupils, or 31.35%	made gains of from .6 year to over 3 years
6,345	pupils 100.00%	

More than 10 percent of the whole number showed, in three months, gains of more than a year in their grade scores.

The second stage of the experiment evoked considerable enthusiasm among the participating teachers, but revealed one serious question: how could one be reasonably sure that all the teachers applying the tests and returning the scores actually taught their students to use the study exercises in the period of the experiment? So many of the scores showing little or no progress were "bunched" in the returns of a few teachers that we resolved, the next year, to repeat the experiment with teachers who showed express interest in the study guidance feature.

Accordingly, during the autumn of 1938, some 50 high school teachers were selected for further experimentation, who had indicated that they were "using regularly" the reading exercises published on the back pages of the papers. In January, 1939, these teachers were offered standardized reading tests for all their students on the understanding that the reading exercises would be followed regularly throughout the coming semester, and that the results of the reading tests would be available.

In the first week of February, 1939, teachers using *Every Week* with 7th, 8th, and 9th grade students were mailed enough copies of Form A, Master Achievement Tests for Grade 8, for all their students. Teachers using *Our Times* with 10th, 11th, and 12th grade students were supplied with copies of Iowa Silent Reading Tests, Advanced Test, Form A.

Second forms of both tests were mailed to teachers, with one exception (St. Paul), early in May. The interim gave the students approximately three months for the experiment. That is about as long a period as is available for such an experiment within the limits of a semester. To prolong the experiment through two semesters would have been desirable, but difficult because of the prevalence of midyear changes in students. It was imperative that exactly the same students take the test at the beginning and end of the experiment.

In all, 733 sets of Master Achievement Tests were shipped to teachers of 7th, 8th, and 9th grade classes, and 1,330 sets of the Iowa Silent Reading Tests were sent to teachers of 10th, 11th, and 12th grade classes. Illness or early closing of schools prevented a number of teachers from administering the second form of the tests. However, after eliminating from the scores all students not taking both forms of the test, the results in the cases of 1,148 students, in 40 widely separated classes, were available. They are summarized in Table I.

TABLE I

READING COMPREHENSION

Grade		Students	Form A	Median G-Score	Form B	Median G-Score	Deviation fr Expecte
8	New Wilmington, Pa.	31	2/23	9.0	5/17	9.5	plus
7	Buffalo, N. Y. No. 37	29	3/3	8.2	5/31	8.7	plus
8	Buffalo, N. Y.	35	3/3	8.9	5/31	9.0	minus
8	Buffalo, N. Y.	31	3/3	8.5	5/31	8.7	minus
8	Buffalo, N. Y.	30	3/3	8.9	5/31	9.1	minus
7	Houston, Texas	29	2/15	8.1	5/10	8.9	plus
7	Houston, Texas	35	2/15	8.5	5/10	9.5	plus
7	Houston, Texas	37	2/15	8.2	5/10	8.9	plus
8	Lawrenceville, Va.	7	2/13	7.4	5/18	8.0	plus
8	Lawrenceville, Va.	31	2/13	7.9	5/18	8.1	minus
8	Lawrenceville, Va.	18	2/13	7.7	5/18	7.9	minus
7	Clanton, Ala.	54*	2/23	7.5	5/16	8.0	plus
8	Clanton, Ala.	37	2/23	7.7	5/16	7.8	minus
7	McFarland, Calif.	26	3/9	7.8	5/15	7.5	minus
7	Elbridge, N. Y.	28	2/21	7.5	5/11	8.2	plus
9	Cleveland, Ohio	29	2/15	8.2	5/19	8.7	plus
9	Cleveland, Ohio	30	3/16	9.0	5/19	9.0	minus
10	Union Springs, Ala.	32	2/20	12.0	5/15	12.7	plus
11	Union Springs, Ala.	20	2/20	11.4	5/15	12.0	plus
12	Union Springs, Ala.	19	2/20	12.0	5/15	12.0	minus
10	Clanton, Ala.	20	2/23	11.3	5/16	11.3	minus
11	Clanton, Ala.	25	2/23	11.8	5/16	12.2	plus
12	Clanton, Ala.	44	2/23	11.8	5/16	12.5	plus
11	St. Paul, Minn.	121**	2/7	13.3	4/11	13.9	plus
12	St. Paul, Minn.	50*	2/7	13.3	4/11	14.0	plus
12	Rensselaer, Ind.	29	3/9	12.5	5/22	13.2	plus
12	Kimberly, Wis.	33	2/8	11.9	5/18	12.6	plus
12	Maumee, Ohio	64*	2/8	13.5	5/19	13.8	
12	Oshkosh, Wis.	43	3/1	13.4	5/22	13.8	plus
11	Syracuse, N. Y.	33	2/—	11.9	5/17	13.1	plus
11-12	Columbus, Ohio	48*	2/20	11.0	6/1	12.1	plus
11-12	Olney, Illinois	30	2/2	11.3	5/16	12.6	plus
11	Lawrenceville, Va.	20	2/13	11.0	5/18	12.0	plus
40	classes	1148					28 plus
							10 minus
							2

* Counted as 2 classes

** Counted as 4 classes

Average: plus

The table is to be read: "Thirty-one 8th grade students at New Wilmington, Pa., took Form A, Master Achievement Test in Reading, February 23, and Form B, May 17. On Form A, the class median was a grade-score of 9.0 or the beginning of the 9th grade; on Form B, the class median was a score of 9.5 or the fifth month of the 9th grade. As the period between the tests was about three months, the gain reasonably to have been expected was roughly .3 year (three months) and the deviation from the expected is plus .2 year (two months). For grades 10, 11, and 12, results are based on Iowa Silent Reading Tests, high school forms."

In the above tests, 28 of 40 classes made gains greater than would ordinarily have been expected in the period covered by the experiment, the gains aggregating 12.2 years above expectation.[2] Two classes made typical gains; ten classes registered small losses, the losses totalling 2.0 years. The net gains, averaged among the forty classes, indicate that readers of junior-senior high school level can make a gain of 5.55 months in reading ability in three months time, by the simple device of devoting part or all of one period a week to the development of basic reading skills in conjunction with their study of current events.

TABLE II

RATE OF READING

Grade		Students	Form A	Median G-Score	Form B	Median G-Score	Deviation From Expected
10	Union Springs, Ala.....	32	2/20	8.9	5/15	10.6	plus 1.4
11	Union Springs, Ala.....	20	2/20	8.9	5/15	9.9	plus .7
12	Union Springs, Ala.....	19	2/20	8.9	5/15	10.6	plus 1.4
10	Clanton, Ala.	20	2/23	8.9	5/16	10.9	plus 1.7
11	Clanton, Ala.	25	2/23	9.6	5/16	12.9	plus 3.0
12	Clanton, Ala.	44	2/23	9.4	5/16	9.6	minus .1
11	St. Paul, Minn.....	121**	2/7	9.9	4/11	14.0	plus 3.6
12	St. Paul, Minn.....	50*	2/7	10.6	4/11	14.0	plus 3.1
12	Rensselaer, Ind.	29	3/9	12.6	5/22	14.0	plus 1.1
12	Kimberly, Wis.	33	2/8	8.9	5/18	9.4	plus .2
12	Maumee, Ohio	64*	2/8	9.9	5/19	13.4	plus 3.2
12	Oshkosh, Wis.	43	3/1	12.2	5/22	13.7	plus 1.2
11	Syracuse, N. Y.	33	2/–	10.6	5/17	14.0	plus 3.1
11-12	Olney, Illinois.	30	2/2	13.4	5/16	14.0	plus .3
11	Lawrenceville, Va.	20	2/13	9.9	5/18	14.0	plus 3.8
20	classes	583 students					19 plus 1 minus

* Counted as 2 classes.
** Counted as 4 classes.

[2] The forty classes (as adjusted) are so nearly uniform in size that the averaging of the median gains gives a figure that would not differ materially from the median gain. The only small class (Lawrenceville) had a deviation but slightly above the average.

It is perhaps worthy of mention that the gains recorded under the Iowa tests were greater than those recorded under the less well-known Master Achievement Tests. Three classes using the Iowa tests made gains greater than any others in the experiment. Only four classes using the Iowa tests failed to show some net gain.

As the Iowa Silent Reading Tests measure reading speed separately, a second index of gain is available on the 10th, 11th, and 12th grade classes, which is summarized in Table II. This table is to be read: "The median of 32 pupils in the 10th grade at Union Springs, Alabama, had a reading rate (8.9) slightly below that of a normal ninth grade pupil when tested February 20; but had attained the reading rate of an advanced 10th grade student (10.6) when tested again May 15. The gross gain (1.7 years) is plus 1.4 years above the normal expectation for the period covered by the experiment."

In rate of reading, the 10th, 11th, and 12th grade classes made very large gains. Most of them, measured by the first test, were considerably slower readers than their grades indicated. Medians for several classes were two or three years below national norms. Where the comprehension scores for such classes were normal, the gains in reading rate during the brief experiment were little short of phenomenal. Indeed, the average median of nineteen classes made a gain of 2.54 years in reading rate in the three months covered by the simple experiment—an average gain-above-the-expected exceeding two years in standardized grade score!

Special attention may be called to the fact that none of these were remedial reading classes. Without exception, the median grade-scores on Form A, Table I, indicate average to superior reading ability at the outset of the experiment.

Teachers participating in the experiment were instructed to devote no more time to the project than they usually gave to their current events study and recitation period. Two reported this as two periods a week, the others one period.

Naturally, there was variation in the manner and effectiveness with which the work was pursued. For example, the Indiana teacher writes: "In addition to the study helps in the paper, I used an individual conference with each student after the first test. At that conference we decided upon what were the student's main weaknesses and planned a program of corrective work to overcome them. Our period consisted of ten to fifteen minutes at the beginning of each day's work."

The teacher to whom a developmental program of this sort appeals

most is apt to be one already in sympathy with it. An Illinois teacher writes: "I think it is quite as important for high school students to learn how to study history as it is for them to come to some understanding of history. Hence, in all my planning the former receives as much attention as the latter. Your program fitted in nicely with my purposes. In the class used for the experiment, the major part of the current events hour (once a week) was devoted to individual work on the exercises provided. I assisted only when necessary. I had chosen the class because of the great individual differences within it. The majority of the students improved in other subjects, as well as in reading—but I hesitate to say as a result of the experiment. Most teachers emphasize the value of learning to do careful, thorough, individual work."

Teacher after teacher confirmed the judgment of the reading experts that a general, developmental program in reading is urgently needed. "As each year brings me a group of history students who do not know how to read intelligently, I have learned to be patient and hope for the best. My problem I find is that of nearly every teacher of history and English whom I question on the subject."

There is need for caution, of course, in interpreting the experiment. A longer period would have been preferable; but three months is about as long as such an experiment can be conveniently stretched within the limits of a semester. To have run the experiment six months would have confined it, for practical purposes, to schools making few or no changes at midyears.

It might have been more convincing if control groups had been set up, under the same teachers, but not taking the reading exercises followed by the others. This was done in the Lakewood experiment, in 1937. We trust it may be repeated on a larger scale, with careful control of subjective elements as well as psychological and reading abilities of the students.

In the present experiment, the aim was to measure results in such an assortment of teaching and classroom conditions as might make a reasonable cross-section. The classes were scattered from New York to California, Alabama to Minnesota, in villages and cities. Among such a sampling, control classes were impractical.

The use of standardized reading tests (in this case, two sets, independently standardized) is itself a yardstick. Many thousands of high school students, on these tests, have attained gains of 0.3 year in three months' school work. Until developmental reading programs have been so widely introduced as to make a material change in high school stu-

dents' reading progress, it must be assumed that control groups, using prevailing methods of instruction, would have made 0.3 year's gain in three months, whether in comprehension or in reading speed. Instead of that, 40 classes made 0.55 year's gain in comprehension and 20 made 2.54 years' gain in reading speed.

How can one be sure that these same forty teachers, above average in initiative, would not have led their classes to comparable gains by some other method? That, perhaps, may be the subject of another experiment.

All we assert on the basis of the present experiment is (1) that teachers who are interested in improving the reading and study habits of high school students can secure gratifying results even with a modest investment of time and effort; (2) that the classroom current events periodical, if edited for the purpose, can supply self-motivating material and self-testing reading techniques; (3) that high school students even of average or superior reading ability will make gains—sometimes astonishing gains—under the stimulus of no more than a period a week of modern reading exercises.

If so simple an expedient will nearly double the rate of gain in reading ability normally expected, social studies teachers (and others) need no longer hide behind the excuse that "I really do not know enough about modern reading techniques to attempt to teach reading to high school students." Let them learn while they teach.

"The improvement of reading," says Ernest Horn, "is a responsibility that must be accepted by the teacher of social studies and in the social studies class, even though another teacher has been designated the teacher of reading. . . . When the students' efforts are frustrated by poor reading ability, the teacher cannot use part of the class period in social studies more profitably than in the removal of these disabilities."[3]

To that may well be added the confident assertion of Horn and other reading experts, that there are few high school students, however able, who could not double their rate of effective reading, with a reasonable amount of competent instruction. Here is a rich field for further research in practical methods.

[3] *Report of the Commission on the Social Studies.* Scribner's (1937), pp. 202-3.

VOCABULARY PROFILES OF GROUPS IN TRAINING

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Editor's note: The author presents data from an application of the Michigan Vocabulary Profile Test to show that the patterns from various professional groups are sufficiently different to be of value in educational and vocational guidance.

THE Michigan Vocabulary Profile Test, published in 1937, has been applied to approximately two thousand persons who were in a number of groups in training in various universities.

The results are interesting because they show fairly clear group tendencies and provide occupational profiles which may be of value in counseling work.

The test consists of 240 multiple choice items which were selected to represent ten levels of difficulty in eight fields. These fields are called:

1. Human Relations
2. Commerce
3. Government
4. Physical Science
5. Biological Science
6. Mathematics
7. Fine Arts
8. Sports

The test was generally completed without time limits, in about one hour. Each item consisted of a definition followed by four words, all of which were partly defined, but only one of which was completed and accurately defined. The task was to select the latter. An item is given below:

"Warning against reoccurrence of faults: a) advice b) admonition c) consultation d) criticism"

Table I shows the means and standard deviations for four high school grades combined from four high schools in the Detroit area, and four Art College classes in the University of Michigan, New York University, and Milligan College.

Total raw scores show gains of approximately 12 items for each year of high school, a gain of 26 items between the twelfth grade and the first year

[1] Thanks are due to the National Youth Administration which furnished four part-time workers who helped with the scoring and tabulation of these results, and to the following persons who aided by arranging for the administration of the tests. Prof. A. D. Moore, College of Engineering; Prof. H. H. Koch; V. R. Sims, and George Meyers, School of Education; Prof. John Riegel, School of Business Administration; Miss G. Muxen of the Bureau of Appointments; Mr. Trytten of the University High School; Mr. R. Granville of the Ann Arbor High School; Mr. J. S. Malder of the Denby High School in Detroit; Prof. E. S. Henry of the New York University and Prof. C. H. Crudden of Milligan College.

TABLE I

HIGH SCHOOL AND ARTS COLLEGE MEANS AND STANDARD DEVIATIONS, TO THE NEAREST WHOLE NUMBER

	High School								Arts College							
									1st yr.		2nd yr.		3rd yr.		4th yr.	
Grade	9.0		10.0		11.0		12.0		13.0		14.0		15.0		16.0	
Aver. Age	14–5		15–3		16–3		17–2		18–1		19–1		20–0		21–1	
Number	56		139		44		341		361		246		197		154	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Total Score	39	16	49	21	62	28	75	36	101	24	118	22	128	23	136	22
Human Relations	5	2	6	3	8	3	10	4	13	4	16	4	17	4	19	4
Commerce	5	3	6	3	8	3	10	3	14	4	16	4	18	4	28	4
Government	5	2	7	3	9	4	11	4	16	5	17	4	18	4	19	3
Physical Science	2	2	2	2	4	2	5	3	7	2	8	2	10	3	12	3
Biological Science	5	2	7	3	8	3	9	4	10	4	14	4	15	5	16	2
Mathematics	7	3	9	3	10	4	12	5	14	5	17	5	18	5	18	3
Fine Arts	3	2	3	2	4	3	6	2	10	3	12	3	14	4	14	3
Sports	7	3	9	4	11	4	12	4	17	5	18	4	18	4	18	4

of college, a gain of 17 items between the first and second year of college, of 10 items between the second and third year, and of 8 items between the third and fourth years of college. Stated in relative terms about 16 percent of the first year college group fall as low as the twelfth grade score, and 3 percent as low as the tenth grade score. Nearly 16 percent of the first year college group equal the third year mean and 7 percent equal or exceed the fourth year mean.

There was also a difference of 16 points between twelfth grade students preparing for college and twelfth grade students not preparing for college.

These gains are probably due in part to growth of information and in part to a more narrow selection of students in the higher grades. From this study we cannot tell how much gain came from each cause. Another study showing the scores of the same persons from year to year would be necessary.

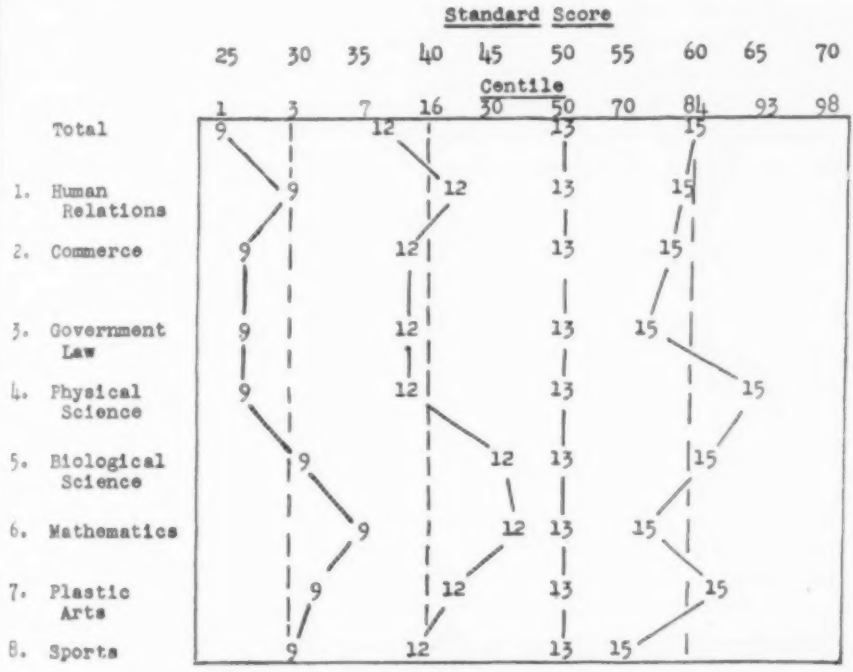

FIGURE I

MEANS OF HIGH SCHOOL AND COLLEGE GROUPS. STANDARD DEVIATION OF FIRST YEAR COLLEGE GROUP TAKEN AS THE UNIT OF MEASUREMENT

The separate divisions of the test show gains which are not strictly proportional to the total gains, but which parallel the total gains fairly closely in general. The ninth grade mean is more than two standard deviations of the first year college group below the first year college mean. The twelfth grade is approximately one standard deviation below, and the fifteenth grade is a little more than one standard deviation above the first year college mean. The largest discrepancies from this rule are the means in biological science, mathematics and sports. Biological science and mathematics showed very little difference between the twelfth grade and the first year of college, while sports showed little gain beyond the first year of college.

Since all the norms are given for the beginning of a grade, these figures probably mean that college entrance did not depend upon having biological science or mathematics information much above the twelfth grade level, and continuation in college did not require gains in knowledge of sports from any considerable number of students. These results are fairly in line with expectations from college entrance requirements.

Table II shows the norms for six groups of students who had reached a high degree of specialization. The profiles of these groups show distinctive features. The Graduate Nurses, Figure II, have a low total score, but high Biological Science scores and moderate scores in Human Rela-

TABLE II

MEANS AND STANDARD DEVIATIONS FOR VARIOUS OCCUPATIONAL GROUPS IN TRAINING

Nearest whole numbers in raw scores

	Graduate Nurse		Med. Sch. 1st year		Engineer Senior		Bus. Ad. Senior		Graduate Education		Public Administration	
Grade	15		17		16		16		17+		17	
Aver. Age	22–7		22–1		21–9		22–0		24–9		24–3	
Number	87		36		46		41		87		17	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Total Score	91	25	148	19	152	19	135	20	140	28	141	26
Human Relations	13	4	17	4	20	4	18	4	18	4	20	3
Commerce	11	4	16	4	22	4	21	4	20	4	22	3
Government Legal	11	3	14	4	18	4	20	4	19	4	23	3
Physical Science	7	3	23	3	25	3	10	3	12	3	11	4
Biological Science	23	2	25	2	18	4	14	3	18	5	15	4
Mathematics	11	3	19	3	24	3	20	4	19	5	20	4
Fine Arts Plastic	6	2	13	3	12	4	11	3	14	4	11	3
Sports	9	4	21	4	21	4	21	4	18	4	20	4

tions vocabularies. The first year Medical School students have high totals and very high scores in both Physical and Biological Sciences. The

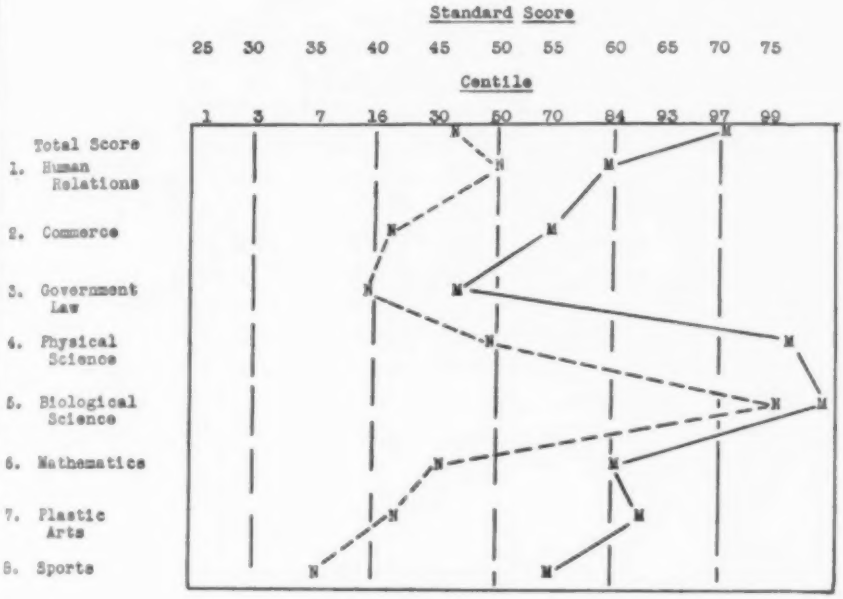

FIGURE II

PROFILES FOR NURSES N, AND FIRST YEAR MEDICAL STUDENTS (M)

Engineering Seniors had high totals and very high means in Physical Sciences and Mathematics. Persons in these three groups can be distinguished from all other groups with great accuracy on the basis of test scores alone.

The last three groups, shown in Table II and Figure III, are more nearly alike. Their mean totals are approximately 138 and they have less marked fields of specialization. There are, however, differences which make it possible for a careful observer to classify most, that is 90 percent, of the students in these groups correctly. The Seniors in the School of Business Administration showed their highest scores in Commerce, Government and Mathematics. The Graduates in Education surpassed in Commerce, Biological Science and Mathematics, and the students in Public Administration excelled in Human Relations, Commerce, Government and Mathematics.

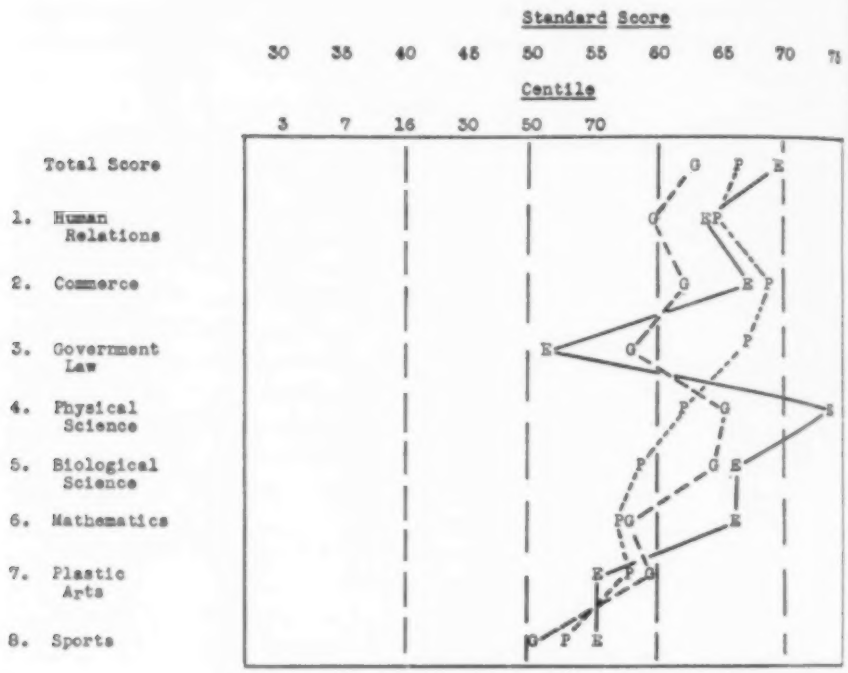

FIGURE III

PROFILES FOR ENGINEERING SENIORS (E) GRADUATES IN EDUCATION, (G) AND PUBLIC ADMINISTRATION GRADUATES (P)

The Sports and Fine Arts vocabularies did not aid in differentiating these groups, but they might be valuable for describing other groups. It is also clear that the test does not have sufficient altitude to show differences which must exist within highly-trained groups. With the material now on hand the scales could be extended to both high and lower levels or supplemented by additional tests.

A very interesting research must be made to find out how well vocabulary profiles of this sort will predict success in academic and professional work. Predictions from vocabulary profiles may be higher than from general mental tests, because the profiles discriminate groups in training much better.

SUMMARY AND CONCLUSION

Norms are given for the Michigan Vocabulary Profile, Forms I and II, for High School and College, and six specialized groups in training.

The High School and College norms show differences which are typical of various levels of achievement and selection. The mean twelfth grade score was approximately one standard deviation of the first year college group below the mean of the first year college students, and the mean of the third year of college, one standard deviation above the first year level. Biological Sciences and Mathematics showed the smallest differences between twelfth grade and first year college means.

Three of the specialized groups, Graduate Nurses, Engineering Seniors, and Medical School, first year students gave profiles which were easily distinguished from all other groups. Three other specialized groups, Business Administration Seniors, Graduates in Education, and Public Administration Graduate Students gave similar profiles, which were, however, sufficiently different to make classification possible from test scores alone. Special vocabulary tests to supplement this one, might make distinctions between these administration groups more certain.

Further studies are needed to show the prediction from such profile scores of educational and professional success.

AN ITEM ANALYSIS OF MEASURES OF TEACHING ABILITY

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Editor's note: A number of instruments purporting to measure aspects of teaching ability have appeared in recent years. The author presents an item analysis of a number of such tests.

DURING the last two decades there has been developed a rather imposing array of instruments purporting to measure various qualities and traits considered to be associated with teaching ability. These instruments have been used in a wide assortment of studies and have been subjected to elaborate statistical techniques in attempts to show the relationship between the factors measured by the tests and various criteria of teaching ability. As far as the writer can find out, none of these investigations have attempted to subject these measures of teaching ability to an item analysis to discover clues to types or categories of items which might be of value in the refinement of these instruments or the creation of new ones.

The investigation here reported attempts an analysis of the individual test items of eleven selected measures of teaching ability using as a criterion of teaching ability the measurable changes produced in pupils. For the purpose of this investigation it is assumed that the best measures of teaching ability, other things being equal, are those items which individually possess a high degree of discriminating power. Discriminating power is defined as the tendency of subjects with high criterion scores to have a greater proportion of correct or desirable responses to the items under investigation than do subjects with low criterion scores.

In this study eleven teacher tests were administered to 57 one-room rural school teachers. These tests were: (1) The American Council on Education Psychological Examination, 1936 Edition; (2) The Teachers College Psychological Examination, 1934 Edition; (3) The American Council Civics and Government Test, Form B; (4) The Morris Trait Index L; (5) The Torgerson Test of Teacher-Pupil Relationship (Mimeographed Form); (6) The Bernreuter Personality Inventory; (7) The Washburne Social Adjustment Inventory (Sapich Edition); (8) The John Dewey Society Test of Social Attitudes of Secondary School Teachers; (9) The Lewerenz-Steinmetz Orientation Test Concerning Fundamental Aims of Education; (10) The Yeager Scale for Measuring Atti-

* The writer wishes to express his appreciation for the assistance and encouragement given by Professor A. S. Barr of the University of Wisconsin, in this investigation.

tudes Towards Teachers and the Teaching Profession; (11) The Wrightstone Scale of Civic Beliefs.

The criterion of teaching ability used in this investigation was a composite index derived from the measurable changes produced in 7th and 8th grade pupils by 57 teachers of the social studies. The changes were measured by means of a number of tests chosen with reference to the objectives of the course as follows: (A) A battery of six tests measuring the work over a six month period, as follows: the Wrightstone, Scale of Civic Beliefs; the Wrightstone, Abilities to Organize Research Materials; the Wrightstone, Applying Generalizations to Social Studies Events; the Hill, Test in Civic Attitudes; the Hill, Test in Civic Information; and the Hill, Test in Civic Action. (B) Two tests constructed especially for this investigation to measure the objectives of two specified three-week units of work, namely a Test of Safeguarding Public Health, and a Test of Community Planning.

In the calculation of the criterion scores differences in pupil ability were taken into consideration by equating the classes on intelligence, reading ability and initial status on achievement tests. This was done by testing the homogeneity of class means and standard deviations through the use of Snedecor F test [1] which is a test to determine whether or not the variation between class means was significantly greater than the variation within classes, and through the use of the chi-square test[2] to determine whether or not the individual classes were samples from populations having equal standard deviations.

A variety of methods have been devised for testing the discrimination power of test items. Among the methods most frequently used are Biserial *r*, Vincent, McCall, Clark, and Upper-Lower Thirds.[3] Lentz,[4] Wilder,[5] and Long[6] have reported investigations studying the comparative value of various methods of item validation. Each of these studies indicates that

[1] Snedecor, G. W. *Statistical Methods* (Ames, Iowa: Collegiate Press), pp. 182-189. (Section 10.4)

[2] Rider, P. R. *An Introduction to Modern Statistical Methods* (New York: John Wiley and Sons, 1939), pp. 102-103.

[3] Long, J. A., Sandiford, Peter, and others. *The Validation of Test Items* (Toronto, Canada: Bureau of Educational Research, University of Toronto, 1935), pp. 16-50.

[4] Lentz, T. L., Hirshstein, Bertha, and Finch, F. H. "Evaluation of Methods of Evaluating Test Items," *Journal of Educational Psychology*, XXIII (May, 1932), pp. 344-350.

[5] Wilder, Flora M. "An Evaluation of Methods of Test Item Validation," Unpublished Ph.D. Thesis, University of Wisconsin, 1935.

[6] Long, J. A., Sandiford, Peter, and others, *op cit.* pp. 68-125.

when the test constructor is interested in selecting those items which possess the highest degree of discriminating power such that the resulting test possesses a maximum reliability, the technique known as Upper-Lower Thirds is about as good as any other and is by far the most economical to use. With these facts in mind the Upper-Lower Thirds method was employed in this investigation.

In order to determine how large the difference between the proportions of testees answering the items correctly in the upper and lower thirds needed to be for the difference to be considered statistically significant, the technique developed by Votaw[7] was used.

TABLE I

SUMMARY OF THE RESULTS OF ITEM ANALYSIS FOR EACH OF ELEVEN TEACHER MEASURES

Test	Total Number of Items	Percentage of Items Possessing Zero Discrimination	Percentage of Items Possessing Negative Discrimination	Percentage of Items Possessing Insignificant Discrimination	Percentage of Items Possessing Significant Discrimination
American Council Psychological Examination	152	22.3	43.4	30.4	3.9
Teachers College Psychological Examination	200	24.5	36.5	38.0	1.0
American Council Civics Test	222	15.3	36.9	43.3	4.5
Morris Trait Index L	108	16.6	43.5	39.0	0.9
Torgerson Teacher-Pupil Relationship	169	0	34.9	62.2	2.9
Bernreuter Personality Inventory	120	10.8	60.8	29.1	11.6
Washburne Social Adjustment Inventory	141	22.6	36.1	38.2	4.2
Hartman Social Attitudes Test	206	18.4	23.7	52.1	5.8
Orientation Test	152	15.1	49.2	35.7	0
Yeager Scale of Attitude Toward Teaching	45	28.8	40.0	26.6	11.1
Wrightstone Scale of Civic Beliefs	160	23.7	24.3	46.4	5.6
Total	1675				
Average		18.0	39.0	40.1	4.7

[7] Votaw, D. F. "Graphical Determination of Probable Error in Validation of Test Items," *Journal of Educational Psychology*, XXIV (December, 1933), pp. 682-686.

The procedure used in the item analysis of a given test was briefly as follows:

(1) The teachers were ranked in the order of the size of the criterion scores expressed in terms of pupil changes.

(2) The teachers were then divided into thirds, with 16 teachers in the upper and lower groups respectively.

(3) The responses of each teacher to each item of each test were tabulated for both the upper and lower groups.

(4) The percentage of correct or desirable responses to each item was calculated for the upper and lower group respectively.

(5) The difference between the percentages of the lower and upper groups on each item were tested for statistical significance. A critical ratio of 3 P.E. was accepted as indicating a significant difference between the upper and lower groups.

RESULTS

A summary of the results of item analysis for each of the eleven teacher measures is presented in Table I. This table gives for each test the percentage of items possessing zero, negative, insignificant and significant discrimination. In brief, the results are as follows:

(1) Of the one-thousand six hundred and seventy-five items which the eleven tests are composed only sixty-eight items or slightly over four percent were found to possess statistically significance or discriminating power in terms of the criterion of teaching ability employed in this investigation.

(2) No single test had over twelve percent of its items of satisfactory discriminating power.

(3) Eighteen percent of the total number of items possessed zero discriminating power.

(4) Thirty-nine percent of the items were found to have negative discriminating power.

(5) Forty percent of the items showed a positive but statistically insignificant discriminating power.

The small number of satisfactory items leads one to speculate as to why this result was obtained.

One reason for this result might be ascribed to the fact that the items were poorly selected or poorly stated.

A second, and no doubt more probable reason, is that an individual item may measure such a very narrow range of behavior that when used

as a measure of teaching ability it cannot discriminate between groups of known divergence in ability.

A third reason lies possibly in the realm of the organization of human abilities. The teacher may bring her whole self, as a unit, to each successive teaching situation such that an individual test item may never constitute a satisfactory measure of any so-called trait or quality in question.

Finally the criterion of teaching ability employed in the investigation may have been an inadequate one.

Perhaps all or none of the above reasons explain the findings.

GENERAL CONCLUSIONS

(1) The findings of this investigation would seem to cast serious doubt upon the validity of the tests herein studied as measures of teaching ability when pupil change is used as the criterion of teaching ability.

(2) The results offer very little in the way of clues to types or categories of items for the refinement of the tests employed or the creation of new ones.

(3) It is not the belief of the writer that the measurement of teaching ability is a hopeless task. It would seem, however, that some of the energy being put to the problem might well be directed to a more careful study of existing measures themselves and the development of more refined measures.

THE SELECTION OF STUDENTS FOR THE PROFESSION OF TEACHING

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Editor's note: One of the first universities to employ systematic methods of selecting students for the profession of teaching was Syracuse University. The author describes the methods employed at Syracuse and presents data relative to their effectiveness.

EVERY evaluation of the effectiveness of our educational system whether made subjectively by the taxpayer when he considers school budgets, or by state and national surveys, shows that there is much to be desired which, as yet, we are not realizing from our educational efforts.

. . . The health of our school children should be improved. . . . They do not develop sufficient skills in reading. . . . Their academic knowledge is limited, and the functional use of that knowledge is disappointing. . . . There is much emotional instability and social incompetence. . . . High school graduates lack a sense of civic responsibility. Such statements can be gleaned from reports of research, surveys, and papers at educational conferences. All such reports would be depressing and disheartening to say the least if there were not some consolation in the fact that most research has been more concerned with the defects in education than with the progress that has been made. Also, we have come to think that recognition of weaknesses is, in itself, a healthy sign that our efforts in education are not static but in a process of development.

We do not know as yet just what portion of the failures of education can be attributed to the types of individuals whom we have as teachers in our schools. Although there is little scientific observation from which conclusions can be drawn, it is likely that such terse statements as, "Those who can, do; those who can't, teach," have been backed by a mass of observation deserving of some credence. The Carnegie[1] and other Reports indicate that, in at least some states, the better students in our colleges and universities have not been going into the profession of teaching.

[1] Learned, W. S. "Tested Achievement of Prospective Teachers in Pennsylvania." *Carnegie Foundation for the Advancement of Teaching.* Thirty-first Annual Report. Published by the Carnegie Foundation (1936), pp. 29-51.

It is with this problem in mind that Syracuse University began to develop a program of selection for prospective teachers in 1934. A preliminary description of the development of the program was reported by Ganders[2] in 1936. Certain fundamental changes have been made in the procedure during the last three years. This paper reports the processes of teacher selection as in operation at the present time. The improvement of teacher quality through selection is just one phase of a more comprehensive program now being inaugurated at Syracuse. This program affords an opportunity for prospective teachers to study, by means of field experience, discussion and reading activities, the problems of adolescent development, the problems of society, and the problems of teaching.

CRITERIA AND SOURCES OF INFORMATION ON SELECTION

It seems reasonable that the qualifications desirable in a teacher should be at least commensurate with educational outcomes as hoped for in expressions of educational aims, whether they be the cardinal principles or the more comprehensive objectives set forth recently by the Educational Policies Commission. Such qualifications would demand that teachers should be healthy, socially competent, emotionally stable, intellectually capable, academically successful, and civically responsible. The admissions program at Syracuse is set up with these qualifications in mind.

Students make application for admission to the School of Education at the end of the Sophomore year. If admitted to the School of Education, they become dually enrolled[3, 4, 5] in the college of their major academic area and the School of Education. It is important to remember that the freshmen are a highly selected group, and that the sophomores who apply are a further selected group because of the usual freshman and sophomore academic mortality.

At time of application students fill out a cumulative record card reporting personal data concerning academic interests, previous aca-

[2] Ganders, Harry S. "Quality in Education," *School and Society*, XLV (June 19, 1937), pp. 839-843.

[3] Ganders, Harry S. "The Selection of Prospective Teachers in the Sophomore Year of the University," Official Report of the *American Educational Research Association*, February, 1936.

[4] Ganders, Harry S. "An All University Professional School," *School and Society*, XLIV (October 10, 1936), pp. 482-485.

[5] Ganders, Harry S. "Dual Professorships," *The Educational Record*, XVII (October, 1936), pp. 566-570.

demic preparation, nationality, race, religion, education and occupation of parents, high school and college extra-curricular activities, recreational interests, summer and full time work experiences, travel, camp attendance, camp counselling, teaching, scholarships and the bases on which they were granted, and information regarding self-support. A report is obtained from the office of the Dean of Women and the Chairman of the Council on Men's Affairs[6] giving favorable, unfavorable, or the absence of information relative to their ability to live wholesomely with students and contribute to the promotion of university activities. Similar reports are received from the deans of the colleges in which they have been enrolled during their freshman and sophomore years. A speech test is administered in the Department of Speech and a thorough physical examination is administered at the University Infirmary.

The health examination is a "follow-up" on the freshman examination and more thorough in that basal metabolism (when necessary), tuberculin, and Wasserman tests are given.

When making application, the students sign a statement authorizing the Director of the Infirmary to give such information as would be pertinent to the admission of a candidate to a profession in which the indidual will be in close contact with large numbers of students throughout a school year for five to eight hours a day. Actually specific information is rarely forwarded to the admissions' committee from the infirmary. The director of the infirmary has been asked to approve or disapprove of the student as a candidate for admission to the School of Education on the basis of his answer to this simple question, "Would you like to have your children in close contact with this individual daily in a classroom situation?" If the answer of the director of the infirmary is negative the student is referred back to him for his reasons. Obviously, negative recommendations come through if Wasserman tests are positive and tuberculin examinations show an active condition. Negative recommendations have also been given in cases of chronic cold due to diseased tonsils, sinus infections that have not responded to treatment, or in cases where recommendations for removal of deficiencies have been ignored by the student.

Similar procedure is followed with visual and auditory defects. Many physical defects and health conditions can be readily removed or corrected, and certain students soon clear their record. Negative reports have been forwarded to the Enrollment Committee in cases of markedly

[6] Functions are the same as those of dean of men in many institutions.

defective vision that might be aggravated by a heavy reading load. Students with chronic, but marked deafness have been refused admission until precipitating factors have been removed.

Professional examinations are administered as part of the admissions procedure. Beginning with the fall of 1936, the Coöperative Tests[1] in English Usage and Contemporary Affairs (approximately 90 minutes each) were substituted for the General Culture Test. The "General Culture Test" had its merit, but it was the belief of the Committee on Enrollment that factors covered by that test were reflected to some extent by the academic scholarship. At the same time, it was a recognized fact that students were being admitted to teacher preparation having already completed all of their formal training in English (excepting English majors) who were greatly deficient in English usage and spelling, and who had not developed reading habits which kept their knowledge abreast of important current issues.

The "Coöperative English Usage Test" was chosen because of its practicability for teachers. The major portion of the test calls for ability to identify and correct errors in capitalization, punctuation, grammar, and sentence structure. The spelling test calls for the ability to identify misspelled words. This test was finally selected because of the belief that teachers generally, as well as English teachers, should be at least skillful enough in English usage that they not interfere in their classes with the work that the English teacher does during her one hour of the day; and the fond hope that they might even, if competent in English, supplement the work of the English teacher. The "Contemporary Affairs Test" is concerned with issues that were given wide attention in newspapers, magazines, and periodicals, with current books, and with singular personalities and events in the world of sports, music, and art. The "Contemporary Affairs Test" was chosen because of the fact that there are too many students who, after having graduated should return to study what happened in the world during their four years of college. It has been suspected, although not experimentally proven, that students who have not developed habits of wide, casual reading by the time they have graduated from college, do not readily do so while teaching. Our suspicion has been partially vindicated by the application of these tests to in-service-teachers who come to complete work for a degree in elementary education or for certification in special fields.

[1] Coöperative Test Service of the American Council on Education, 15 Amsterdam Avenue, New York City.

In addition to the fore-mentioned factors in the application procedure, each student has individual interviews with four members of the Committee on Enrollment. The committee consists of the chairman, the director of student teaching and placement, the advisor—dual professor, and a fourth member, usually a woman on the faculty.

The interviewer rates the applicant, using a scale of ten to zero on personal appearance, poise and manners, conversation and use of English, voice—speech defects, and probable influence on pupils. There is a place on the interview sheet for general remarks.

THE ASSEMBLING AND RECORDING OF APPLICATION DATA

The chairman of the Committee on Enrollment is responsible for the assembling and recording of all enrollment data including the scoring of the pre-professional examinations. As soon as all data have been recorded, the chairman summarizes each application; indicating on a specially constructed chart printed on the outside of the folder, those areas in which the applicant does not meet the requirements for admission. In order to save the time of the full committee, the folders of applicants are then classified into three groups: entirely satisfactory, unsatisfactory beyond a doubt, and doubtful.

A quota, as a guide to the Committee on Enrollment, is worked out for each major area on the basis of average placement over the three year period immediately proceeding, plus 50 percent for mortality and another 50 percent for fluctuation in demand. This scheme has not worked well in those major areas where the demand has been greater than the supply e. g. home economics and fine arts. The problem in these areas has not, however, been one of limiting but mainly one of finding a sufficient number of well qualified candidates for the teaching field. It has been difficult to stay within the quota for English and social studies because there are so many top-flight applicants in those fields.

With the preliminary classification of applicants worked out and the quotas established, the chairman calls a meeting of the Committee on Enrollment, constituted as previously stated. The applicants are considered by majors, with the personnel of the committee remaining constant except that the advisor in each major area is a member only while applicants in his field are being considered.

THE FUNCTIONING OF THE COMMITTEE ON DUAL ENROLLMENT

A numerical index combining all factors considered in admission has not been looked upon with favor by the committee. Individual factors

do not maintain a consistent relationship to the total pattern of qualifications presented from individual to individual. Regardless of how good other qualifications may be, if a person has active tuberculosis, his true qualifications are not revealed by a total index in which health has been scored zero. That person should not be permitted to carry active tuberculosis into the classroom, and should hardly be permitted to prepare for a profession that would allow him to do so. Or suppose the applicant is in the field of secretarial science and her professional examination shows her to be able to identify only about one-fourth of the errors in a typed theme. She has completed practically all of her formal training in English. In spite of very fine general qualifications, this girl is headed for serious difficulties in the field of secretarial science education, and a total or composite index does not tell the tale. Removal of such conditions may be proven through subsequent application. Early in the development of the admission program, quite a number of such cases with a single *marked* deficiency were allowed to enter under the condition that they remove deficiencies before graduation. Experience teaches that such *marked* deficiences are more readily removed if admission is withheld.

The Board of Trustees of the University limits admission of students to the School of Education to those who have maintained at least a "C" average during their first two years of college work. Because of the oversupply in certain major areas, the committee maintains a higher standard than that set up by the Board of Trustees. During the last year it was only in very exceptional cases that students were admitted as majors in the social studies, English, science, mathematics, or secretarial science whose scholarship is below 1.2 (one credit point is allowed for each hour of "C" work.) This higher standard tends to eliminate the numerous "headaches" with cases of borderline scholarship.

Minimum standards on the English usage, spelling, vocabulary, and contemporary affairs tests have been empirically determined and vary with the several areas of major preparation. The Committee on Enrollment, including the dual professor in English, agree that students who hope to teach English should, as compared with sophomores in liberal arts colleges all over the country, be at least average (50th percentile or above) in English usage, spelling, vocabulary, and contemporary affairs. For secretarial science and foreign language majors, the 50th percentile is required in English usage, spelling, and vocabulary, and the 40th percentile in contemporary affairs. For social studies and history majors,

the 40th percentile is required in English usage, spelling, and vocabulary, and the 50th percentile in contemporary affairs. For fine arts, physical education and home economics, the 30th percentile is the minimum requirement on all aspects of the tests. (The 30th percentile in these areas takes a heavier toll than do the higher requirements in most of the other areas.) All majors in areas not listed above must achieve at least the 40th percentile on the several aspects of the tests.

The score on the psychological examination is considered in relation to scholarship and preprofessional tests. If it grossly underestimates intelligence as revealed by scholarship and other tests, it is ignored. If the psychology score is considerably higher than scholarship and performance on the other tests, it is used fundamentally for its value in guidance of the student—as to whether the student should be encouraged to remedy his deficiencies and reapply or immediately redirect his educational and vocational efforts.

As has been indicated with those factors already mentioned, so with speech, the reports from the offices of personnel deans, the health report, and the ratings from the personal interviews, a student is accepted or refused admission to the School of Education on the basis of the relation of any qualification or lack thereof to the total pattern. If a slight speech defect is reported from the speech examination but not noticed by the interviewers, the defect is generally ignored in the final consideration of the applicant. If minor defects are present in several of the factors considered, the committee may delay action until more thorough investigation has been made. If qualifications indicate that the candidate is a highly desirable individual but has one or two *marginal* deficiencies, the committee may recommend acceptance with the reservation expressly given to the student that unless these minor deficiencies are cleared by the time of graduation, the candidate will not be given unqualified recommendation for a position. As now applied by the Chairman of the Placement Bureau, graduates who have no deficiencies left over from admission are given first recommendation for positions. Superintendents seeking teachers are definitely appraised of residual entrance deficiencies of candidates. It must be emphasized, however, that only students with marginal deficiencies are so admitted to the School of Education.

Anyone who has worked with ratings based on interviews, is aware of their unreliability. Certain experts in the field have recommended that a composite of at least seven ratings is necessary for reliability. There are practical limits such as lack of time and difficulty in drawing

large committees together. It was, therefore, necessary to limit the number of ratings to four. Unless a student is rated uniformly low by at least three of the four members of the committee, the ratings are not too seriously held against the applicant. For instance, if a student is very high on the objective factors of admission but is rated low by only two of the four committee members, he would be given the benefit of the doubt; however, if he were only marginally acceptable in the objective factors of admission, half favorable and half unfavorable ratings from the committee of four would leave him marginal in the subjective factors. If there were no outstanding factors which recommend such an individual, he would probably be refused. If four members of an interviewing committee feel, putting themselves in the position of a superintendent hiring a teacher, that they would surely look beyond the individual in question in their search for a teacher, the candidate is not likely to be accepted even though objective factors are highly favorable.

The admission program has a guidance as well as a selective function. Therefore, refusals are not permanent. Students who do not gain admission are invited to go over the reasons with the chairman of the committee. The committee is constantly mindful of the possible effect on the student under consideration ten years hence, as well as the possible effects upon boys and girls that this applicant may or may not have under his charge within the next ten years. The chairman insists that all refusals be on grounds sufficiently substantial that the reasons for refusal can be frankly discussed with the applicant. As a result of these conferences a considerable number of students have removed deficiencies, subjective as well as objective in nature.

These post-decision conferences with unsuccessful applicants take much time, and that is as it should be. One cannot but have respect for an applicant who wants to know why he has been refused. This is a serious problem with the student and must be met with understanding. These students are referred to the Director of Vocational Guidance in the University, to the offices of the personal deans for study of personality problems, poor personal appearance, and lack of social poise. Speech cases are referred to the speech clinic and health cases to the infirmary. Students refused because of marginal deficiencies, are frankly told that the committee is favorable toward students whose qualifications are on the ascent, but looks with disfavor toward applicants whose qualifications have been constantly mediocre or have been "on the toboggan." If more than one factor is marginal, the student is frankly told that it

will be necessary to make improvement in the several areas. Research shows that the best indications of future performance is past performance. It is for this reason that we insist on improvement prior to admission in all cases of a marked deficiency or numerous marginal deficiencies.

The action of the Enrollment Committee is open to the review of the deans of the colleges concerned. Where confidential information in their offices reveals evidence pointing in a direction contrary to committee decision, the case is reviewed by the committee. When all cases have been finally approved, a certificate of dual enrollment is signed for each student by the Dean of the School of Education and the dean of the other college concerned. With the filing of this certificate in the office of the registrar, the student becomes officially dually enrolled in the School of Education and the college of his major academic preparation. The degree at graduation is granted jointly by the two colleges.

RESULTS OF SELECTION

Results of the selection procedure in the developmental stage were reported by Ganders[8] in 1936. A somewhat more detailed report can now be given.

Table I was developed by finding first the raw score equivalents on the "Ohio College Association Psychological Examination" for the 75th, 50th, and 25th percentile for the students admitted to the School of Education.

TABLE I

COMPARISON OF STUDENTS ADMITTED TO THE SCHOOL OF EDUCATION WITH SYRACUSE LIBERAL ARTS JUNIORS AND OHIO COLLEGE STUDENTS

Raw Scores O.C.A.** Form 17	Percent Exceeding Raw Score Equivalents		
	School of Education	Syracuse Liberal Arts Juniors	O.C.A. Students
158	25	21	7
132	50	43	17
108	75	68.5	31

*College students covered by O.C.A. norms.
**O.C.A.—Ohio College Association Psychological Examination.

The table should read as follows: A score of 158 was exceeded by 25 percent of the students admitted to the School of Education, by 21 percent of the juniors in the Liberal Arts College at Syracuse and by 7

[8] Ganders, Harry S. "Quality in Education," *School and Society*, XLV.

percent of the students in the several colleges and universities who have taken the "Ohio College Association Test." Reading across the table similarly at the 50th and 25th percentiles of the School of Education group it will be noted that students preparing to teach at Syracuse University are markedly above those of the Liberal Arts College juniors at Syracuse and other schools and universities who use the O. C. A. The comparison with liberal arts juniors is made more significant because education students from all colleges are included in the norms for education students. The Syracuse Liberal Arts juniors[9] were used as a basis of comparison because their ability is generally above the averages of other major colleges in the University.[10]

The table of complete tabulations, omitted here, shows 43 out of 224 students admitted to the School of Education in March, 1938 to be in the upper decile of the Syracuse University enrollees.

Table II shows the performance of students admitted to the School of Education on the "Coöperative English Test, Form O," and the "Coöperative Contemporary Affairs Test" (1937) as compared with sophomores in the Liberal Arts Colleges on which norms for that test were determined.

TABLE II

PERCENT OF LIBERAL ARTS COLLEGE SOPHOMORES EXCEEDING 75TH, 50TH, AND 25TH PERCENTILES OF STUDENTS ACCEPTED BY SYRACUSE SCHOOL OF EDUCATION

School of Education Syracuse University Percentiles	English Test Liberal Arts Colleges*	Contemporary Affairs Liberal Arts Colleges*
75th	5.4	17.8
50th	16.3	30.0
25th	42.9	49.9

*Coöperative Test Service Norms for Sophomores in Liberal Arts Colleges.

The table should be read as follows: Only 5.4 percent of the sophomores in the Liberal Arts Colleges, on whom the norms were determined, for the English test, exceeded the score that divided the upper 25 percent of the students admitted to the School of Education from the lower 75 percent. Comparisons at the 50th and 25th percentiles show even more significant differences. The differences between the School of Education and Liberal Arts Colleges students on knowledge of contemporary affairs are also

[9] Juniors were used instead of sophomores in order to avoid comparison with weak students who withdraw at the end of the sophomore year.

[10] The student body as a whole at Syracuse score about 25 percentile points above the O. C. A. norms.

large, although not as great as on the English test. The writer believes that the comparison would be more to our students' favor on current events if they were to take the test within a six-month period immediately after the test was released. That is the period during which the norms are established. It is necessary for our students, due to the nature of the local schedule to take the test 11 months after publication and one month before the new test is released. In March of the present year, our students took the test covering the calendar year 1937.

Table III shows the major factors operating in the rejection of applicants. It is interesting to note that in only 20 of the hundred cases picked at random did a single factor operate.

TABLE III

FACTORS CONTRIBUTING TO REJECTION OF APPLICANTS FOR ADMISSION TO THE SCHOOL OF EDUCATION

(100 Cases)

	Single Factor	Appearing as One of a Constellation of Factors
Scholarship	8	58
English Usage	—	43
Spelling	—	43
Contemporary Affairs	—	32
Personality	9	36
Health	1	5
Speech	2	3
Total Factors	20	220
No. of Cases	20	80

In 80 cases there was a constellation of factors involving a total of 220 single factors. Under this column, scholarship, where indicated as a participating factor, was usually acceptable as far as the university ruling was concerned, but marginally so. English usage, spelling, and contemporary affairs were in most cases marginally below the requirement, but it is interesting to note that in no case where either spelling, English usage, or contemporary affairs was extremely low, did they stand alone. Dividing the total number of factors appearing in the constellation (220) by the number of cases (80), we find that an average of 2.75 factors militated against acceptance.

The two major single factors causing rejection of applicants are scholarship and personality. Scholarship is the most frequent single factor where factors operate in constellation, and English usage, spelling,

contemporary affairs, and personality appear as factors in approximately one-half of those cases where factors were combined.

Table IV is simply a summary of the disposition of applications made by the enrollment committee at the four different admissions periods throughout the calendar year.

TABLE IV

SUMMARY OF COMMITTEE ACTIONS FOR THE FOUR ADMISSION PERIODS DURING 1938

	No. Applying	No. Admitted	% Admitted	No. Refused	% Refused	No. of Reapplicants	% of Reapplicants	No. of Reapplicants Refused	% of Reapplicants Refused
March 1938	379	228	60	151	40	22	6	16	73
July 1938	59	40	68	19	32	7	12	4	57
September 1938	59	36	61	23	39	37	63	13	35
December 1938	141	77	55	64	45	56	40	39	70
Total	638	381	60	257	40	122	19	72	59

It is significant to note that 60 percent of the applicants are admitted on first application, and 41 percent on reapplication. (In the table this is represented as 59 percent of reapplicants refused).

CONCLUSIONS

1. On the basis of direct comparison students admitted to preparation for teaching through the selection system as described, are markedly superior in intelligence as shown by the "Ohio Psychological Association Examinations," in English as shown by the "Coöperative English Test, Form O," and in knowledge of current events as shown by the "Contemporary Affairs Test" (1937). The bases for comparison were other students from our own university and students from other liberal arts colleges and universities who had used the same tests.

2. In about 80 percent of the cases of refusal, a constellation of factors operates. Undesirable personality operated alone in nine percent of the cases, and in combination with other factors in 36 percent of the cases. Evaluation on this factor represents the combined judgment of four members of the Enrollment Committee, the Dean of Men, and the Dean of Women, and is based on individual interviews and significant data on extra-curricular participation. Scholarship operated in 8 percent of the cases as a single factor and in 58 percent of the cases in combination

with other factors. Speech operated alone in only 2 percent of the cases, and in combination with other factors, in 3 percent of the cases.

3. As judged by the standards of those who discount the quality of teachers, students who survive the selection procedure represent the best, single, large, undergraduate group on the campus. There are still many excellent students in other fields of preparation, but it can no longer be said, "Those who can, do; those who can't, teach."

4. The product of the selection program is generally superior as judged by immediate standards. The next step should be an evaluation of the end products of selection through a study of teacher effectiveness in the field over a period of years.

FEDERAL RELIEF AND SUBSIDIES TO STATES AS INDIRECT AID FOR EDUCATION

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Editor's note: Much has been written in recent years on the subject of federal aid to education. The author discusses federal relief and other subsidies as sources of indirect federal aid.

SOME may feel that federal aid given the states for the support of governmental services such as relief is a source of indirect aid to the public schools. In considering the need for federal aid for the schools, it seems well to analyze the foregoing possibility. Are federal relief and general federal subsidies to the states sources of indirect federal aid to the public schools? If the schools do receive federal aid through those avenues, is the aid sufficient to meet the need?

THEORY OR LOGIC

From the point of view of theory it may seem that general federal subsidies given to the states in support of governmental services outside the field of education, if given in any substantial amount, would tend to benefit the public schools in the states through tax relief. However, the conditions or circumstances under which these subsidies are granted is a determining factor. If federal subsidies are given to support activities which the states and their local governments actually would support to the same extent without federal subsidies, it seems that such federal aid may tend to relieve the state of the need for a certain amount of tax revenue. There is a possibility that this tax relief may be used in part or in total to raise revenue to support the schools.

General federal subsidies may be granted the states for the support of governmental activities considered primarily or entirely as emergency activities. Thus, the people of a given state may feel that regular state and local governmental services should not be curtailed. In order to secure state and local tax revenue to support emergency governmental activities the people may approve special tax levies for this purpose. They may approve a raise in tax rates on existing taxes to secure the extra tax revenue. They may approve both the levying of special taxes and the increase in tax rates on existing taxes. They may approve such arrangements for a period of time only and in such way as not to affect the support given the regular governmental activities. Under these circumstances, whatever federal subsidies the state received for the support of such emergency activities would not affect the support of the schools.

Therefore, it would not serve as an indirect aid to the schools through tax relief.

There is also a third major possibility from the theoretical point of view. If federal aid and federal subsidies are given the states for the support of governmental services other than education, they may actually cause a reduction in the amount of money spent on the schools. This possibility is likely to be true under certain circumstances. If the people of a given state felt that their total tax bill should be no higher even under an emergency and if federal aid and subsidies are given the state on a matching basis for the support of activities which the state otherwise would not support at the new level, then the people of the state might cut expenditures for certain state and local governmental services in order to have money enough to secure federal aid for other governmental services. Under such circumstances the schools are likely to suffer because public school expenditures are the largest single item of state and local governmental expenditures.

GENERAL FEDERAL SUBSIDIES AS AID TO EDUCATION

The foregoing possibilities from the theoretical point of view should be mentioned. The most important aspect of the present problem, however, does not revolve around the question of whether it is logical that the schools receive indirect support from general federal subsidies to the states. Rather, the most important question consists of two parts, the first of which shall be analyzed in the present section and the second shall be studied in the section immediately following. First, do the schools receive indirect financial benefit from general federal aid and federal subsidies given in support of governmental activities outside the field of education? Second, if so, is the aid sufficient to meet the need?

In considering the first question it seemed well to analyze educational expenditures when the federal government gave a relatively small amount of federal subsidies to the states. Recent conditions were compared to those of former years. For these and other similar reasons conditions during 1926, 1928, 1930, and 1936 were studied.

The procedure used in the present section is as follows: Consider conditions during the years 1926, 1928, and 1930 as a whole as the criterion. Compare actual expenditures for the current operation of the schools to the amount of revenue available if all states had adopted a modern state and local tax system based on the Model Tax Plan of the National Tax Association and applied uniform tax rates. That is, actual

expenditures were compared to the amount of money available if each state had put forth equal effort to support its schools under a modern tax plan designed to raise an amount equal to that actually spent for the current operation of the schools throughout the nation as a whole.

The foregoing percentages for 1926, 1928, and 1930 were compared to those for 1936. During this latter year large amounts of general federal aid and federal subsidies were given the states. If general federal aid given in support of state and local governmental activities outside the field of education is an indirect financial aid to the schools, it should be evident in educational expenditures during 1936. Also 1936 is the last year for which basic information is readily available.

In the present analysis groups of states rather than individual states were studied. It was found that groups of states were sufficient for this analysis and at the same time much was gained in brevity of presentation. Individual states varied somewhat from the figure for their group. The richest group of states is the group most able to support schools under a system of state and local taxation based on the Model Tax Plan and uniformly applied throughout the country. The poorest group of states, of course, contains those least able to support their schools under this uniform modern tax system.

It can be observed in Table I that the groups of states varied somewhat in the amount spent for schools in comparison to the money available under a modern tax plan uniformly applied throughout the nation. For example, the richest group of six states spent, during the period from 1926 to 1928 inclusive, 93.36 percent of the amount that could have been raised at uniform effort under the modern tax plan. The second group of rich states spent 96.30 percent of the amount available.

During 1936 the current expense of the schools in the richest six states as a group was 80.69 percent of the amount available under a modern tax plan. During the years from 1926 to 1930 considered as a whole these richest six states as a group spent 93.36 percent as much on the current operation of the schools as was available under a modern tax system. The extremes for given years during that period were 98.63 percent and 88.66 percent. It seems as if, then, that this group of states did not receive indirect federal aid, so far as the current operation of their schools was concerned.

A similar analysis for other groups of states in Table I indicates that six of the eight groups of states in the first division of the table probably received a relatively small amount of federal aid by way of federal sub-

TABLE I

ACTUAL AND POTENTIAL EXPENDITURES FOR PUBLIC SCHOOLS

Group* of States	1926 to 1930**					1935-36			
	Current expense	Model Tax Plan	Percent†			Current expense	Standard Tax Plan (1935)	Percent	Probable Federal aid
			Average	High	Low				
Richest six	$1,246,979	$1,335,656	93.36	98.63	88.66	$ 450,927	$ 558,818	80.69	None
Second six	1,180,998	1,226,344	96.30	97.16	95.59	383,641	371,205	103.35	+ 6.19
Third six	990,402	928,099	106.71	109.92	103.99	276,004	240,074	114.97	+ 5.05
Fourth six	371,299	398,330	93.21	97.04	90.91	112,547	103,319	108.93	+11.89
Fifth six	488,093	443,023	110.17	114.88	103.78	127,098	106,618	119.21	+ 4.33
Sixth six	221,617	205,739	107.72	117.07	101.61	65,251	63,088	103.43	None
Seventh six	428,591	411,591	104.13	106.77	100.95	141,113	130,482	108.15	+ 1.38
Poorest six	298,314	277,484	107.51	109.75	103.86	90,261	73,120	123.44	+13.69
United States	5,226,293	5,226,266	100.00+	100.00	100.00	1,646,842	1,646,725	100.01—	None
Richest twelve	2,427,977	2,562,000	94.77	100.09	92.75	834,568	930,024	89.74	None
Second twelve	1,361,701	1,326,429	102.66	106.04	100.07	388,551	343,393	113.15	+ 7.11
Third twelve	709,710	648,762	109.39	115.58	103.10	192,349	169,706	113.34	None
Poorest twelve	726,905	689,075	105.49	106.35	104.51	231,374	203,602	113.64	+ 7.29

* States grouped according to ability to finance schools under tax system based on Model Tax Plan and uniformly applied.

** School years of 1925-26, 1927-28, and 1929-30.

† Percent current expense of the schools was of revenue available for that purpose under a modern tax plan.

Source of data: data indicating current expense taken from various issues of the *Biennial Survey of Education*. Data indicating revenue available under tax system based on Model Tax Plan taken from Leslie L. Chisholm, *The Economic Ability of the States to Finance Public Schools*. Data for Standard Tax Plan taken from the *Report of the Committee*, Advisory Committee on Education.

sidies and federal relief for governmental services outside the field of education. The amount of probable indirect federal aid for the groups of states ranged from no aid to a possible maximum of 13.69 percent of the amount spent on the current operation of the schools.

It should be mentioned at this point that previous study has indicated that the richest group of six states is approximately four times (or 400 percent) as able to support its schools as is the poorest group of six states. The country as a whole is approximately two times (or 200 percent) as able to support schools as is the poorest group of six states. It should be pointed out also that there are some differences between the tax system based on the Model Tax Plan and the standard tax plan, used in the present analysis. Some error may be caused thereby. However, such error is believed to be small.

SUPPORT AFFORDED THE SCHOOLS IN VARIOUS STATES

The foregoing section dealt with the problem of whether the schools received indirect financial aid—via tax relief—through general federal aid given the states for the support of governmental activities outside the field of education. A crucial question remains to be considered. Has whatever indirect aid the schools have received from federal subsidies been sufficient to meet the need?

Information in the *Biennial Survey of Education* indicates that education expenditures in 1936 varied widely among the states. Mississippi, the state basically least able to support its schools out of its own state and local tax resources, during 1936 spent $29.01 per pupil in average daily attendance for the current expense of the schools. Mississippi also furnished the children of the state school property valued at $107.00 per pupil and maintained schools throughout the state for an average of 132.5 days. On the other hand, the state of New York, a rich state, during 1936 spent $146.00 per pupil for the current expense of the schools, furnished the children school property valued at $491.00 per pupil, and maintained schools for a state average of 185.9 days. During 1936 the nation as a whole spent $80.26 per pupil for the current expense of the schools, afforded the children school property valued at $303.00 per pupil, and maintained schools for a term which averaged 173.0 days. Thus, during 1936 the current expense of the schools per pupil in the state of New York was more than four and one-half times corresponding expenditures in Mississippi and more than one and four-fifths times similar expenditures throughout the country generally. The value of school property per pupil in the state of New York during 1936 was more

than four and three-fourths times the value of similar property in Mississippi and approximately one and two-thirds times similar property in the country as a whole. The average length of the school term in the state of New York during 1936 was nine and one-fourth months (20 day school month), while the term in Mississippi was slightly more than six and one-half months and the school term throughout the country generally was slightly more than eight and one-half months.

The wide variation in the type of schooling afforded the children in different states during 1936 prevailed in a year when general federal subsidies and federal aid to states for the support of state and local governmental services other than education ran into the billions. But was the condition with reference to schools in 1936 quite exceptional?

During 1928 the state of New York spent $137.95 per pupil in average daily attendance for current expense of the schools, afforded the children of the state school property valued at $411.04 per pupil, and maintained schools throughout the state for an average of 184.0 days. At the same time, Mississippi spent $37.02 per pupil for the current expense of the schools, furnished the children school property valued at $93.50 per pupil, and maintained schools for 138.9 days. The country as a whole during 1928 spent $87.22 per pupil for the current expense of the schools, provided school propery valued at $266.25 per pupil, and kept schools open for an average of 171.5 days.

This point should not be overlooked. A wider variation existed between the amount spent for the current operation of the schools in the poor state of Mississippi and the rich state of New York during 1936, when large amounts of federal funds were spent in support of state and local governmental services outside the field of education, than during 1928. Likewise, the average length of the school term in the state of New York during 1936 was slightly longer than in 1928, while the school term in Mississippi during 1936 was approximately one-third of a month (20 day school month) shorter than it was in 1928.

This point also is worth observing. The value of school property in both the poor state of Mississippi and the rich state of New York during 1936, as well as in the country as a whole, was significantly above the value of similar property in 1928. This may be due to some extent at least to the fact that the federal government has given direct aid for school building construction. This latter point can be proposed at the present time only as a possibility, but it deserves careful consideration.

A rich state and a poor state were used in the foregoing discussion to indicate extremes in the support afforded the schools. Figures for the

country as a whole were presented to indicate the average. Thus, a picture of the need for federal aid for education was drawn, as well as an indication of the extent to which any indirect federal aid the schools may have received through tax relief has fallen short of meeting the need.

ABILITY AND EFFORT TO SUPPORT SCHOOLS

The statements in the foregoing section reflect actual or existing conditions. But were those conditions necessary under the circumstances? Did the people of Mississippi, for example, do much less than they could have done in supporting their schools? That is, did they decrease their effort because they felt that the schools of the state were receiving some indirect federal aid? Did the people of the state of New York sacrifice more than the people of Mississippi in order to furnish their children better schools?

An adequate uniform yard-stick is necessary in order to answer those questions. The information presented in Table I throws some light on the questions. It has been found also that if all states adopted a uniform system of state and local taxation based on the Model Tax Plan and used identical tax rates, the people of the state of New York could raise approximately six times as much money per pupil as the state of Mississippi. The amount of revenue New York could have raised for the support of the schools under this uniform modern tax plan was fully as much as New York actually spent for that purpose. On the other hand, Mississippi spent at least as much on the schools of the state as could have been raised for that purpose at uniform effort with other states under a system of state and local taxation based on the model Tax Plan. It also has been found that this ratio is surprisingly constant. It goes back to a fundamental factor, namely, the economic strength of the states.

General federal subsidies to the states and federal expenditures for the support of governmental services other than education may be of some indirect aid to the schools through tax relief. If so, such aid is far from sufficient to meet the need. This seems to be due to the conditions or circumstances under which such aid is given and to the fact that the plan for allocating this aid to the states is such that ability to finance schools and the educational needs of the states receive little or no direct attention. What the schools of the nation need most is not indirect federal aid given in such way that the benefits are viewed from angles other than the direct welfare of the schools. What the schools need most from the federal government is direct federal aid based on the most defensible plan that can be devised for allocating it to the states.

THE EFFECT OF TEACHING THE VOCABULARY OF ALGEBRA

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Editor's note: Much has been written in recent years upon the importance of reading in both elementary and secondary school subjects. The author shows that the study of vocabulary in algebra improved achievement.

THE problem with which this study is concerned is to determine what effect the teaching of the vocabulary of algebra will have upon the achievement in ninth grade algebra. The vocabulary and concepts consist of words and expressions which the pupil encounters in the solution of verbal problems, in the reading of the textbook, and in the oral explanations made by the teacher.

A series of vocabulary tests was constructed, one for each of the units of algebra. The purpose of these tests was two-fold; first, to determine, by an analysis of errors made, the words and expressions which were unfamiliar to the pupils at the beginning of the unit, and secondly, to measure the improvement in vocabulary knowledge during the unit.

The words and expressions to be included in each of the unit vocabulary tests were determined by an analysis of two standard ninth grade algebra textbooks. The reading material in the texts consisted mainly of explanations, definitions, and directions. A list was made of the technical words and mathematical expressions which appeared in each unit of these two books. A composite list was then made and duplicates were omitted. The items in these tests were of the multiple choice type. For example, "In which of the following expressions is the number 2 an exponent? a. $\frac{1}{2}$ b. $x + 2$ c. $3x^2$ d. $2x$." The correct response in this case being designated by the letter "c." The other three expressions may be called "detractors." The "detractors" for each of the items on the test were drawn from errors made by former pupils in algebra. Over a period of years, the author noted common errors that were being made. In the test items shown above the 2 in the first "detractor" is a denominator, in the second it is a term, and in the last it is a numerical coefficient or a factor. Quite often pupils in algebra confuse exponent with denominator, term, or factor. The "detractors" were criticised by two other experienced algebra teachers.

The vocabulary test for the unit on the solution of verbal problems by the use of simultaneous equations was of a different form. The items were of the completion type. They were selected from an analysis of the

verbal problems which are typical of such a unit. This test was given in two parts. One part used numbers entirely: for example, "represent the sum of 5 and 6." The second part used letters in place of numbers; for example, "represent the sum of 'a' and 'b'."

The vocabulary tests that were used and their reliabilities are shown in Table I. The number of cases ranged from 80 to 100. These coefficients of reliability were determined by the "split halves" method.

TABLE I

VOCABULARY TESTS AND THEIR COEFFICIENTS OF RELIABILITY

Test	Unit	*roe	Coefficient of Reliability
Positive and Negative Numbers	I	.70	.82
Multiplication and Division	II	.70	.82
Special Products and Factoring	III	.68	.81
Fractions	IV	.67	.80
Powers, Roots, and Radicals	V	.62	.76
Ratio, Variation, and Proportion	VI	.68	.81
Simultaneous Equations—Problems	VII	.81	.89
General Vocabulary Test		.84	.92

* Roe is the correlation coefficient between the odd and even items on the test.

With the exception of the General Vocabulary Test, none of these tests required more than 20 minutes to administer which would account in part for the fact that the reliabilities averaged around .80. Since the results, however, were used for group rather than individual comparisons, the reliabilities may be considered sufficiently high.

The validation of the list of mathematical expressions against a general word list such as Thorndike's has serious limitations. Many of the technical words of algebra have a different connotation in a general vocabulary. For example, such words as radical, exponent, power, factor, and index have entirely different meanings in common usage. The technical words which do not possess this duality of meaning and which are rated in Thorndike's general word list, all have very high ratings. Since the size of this rating is inversely proportional to the frequency of usage, it can be concluded that this technical vocabulary of algebra is of little importance in general reading as measured in terms of Thorndike's word list.

As would be expected, many of these words and expressions appeared in two or more units of instruction. These served as a basis for the con-

struction of the Vocabulary Survey Test which was used in this study. The "matching" type of question was used in this test. This type, like the multiple choice question used in the unit vocabulary tests, required that the pupil recognize the algebraic expression for the various vocabulary items.

The remedial exercises used in conjunction with the teaching of the experimental sections, were constructed on the basis of the results of the vocabulary tests. An analysis of errors was made for the vocabulary tests and items missed by 50 percent or more of the group were included in the remedial exercises. However, no sharp line of demarcation was set between items to be and not to be included. Frequently words or expressions missed by less than 50 percent of the group were employed, either because they were deemed sufficiently important to the teaching of the unit or because they related very definitely to other items that were being utilized in the remedial work.

The vocabulary concerned with the solving of verbal problems was composed largely of expressions relating to certain mathematical concepts. The remedial work over this portion of the subject comprised such items as: represent the sum of "a" and "b," the amount "a" exceeds "b," the perimeter of a rectangle whose length is "L" and width "W," etc. Pupils in algebra have difficulty not only in recognizing the meaning of specific words, but also in translating the concept into an equivalent algebraic expression. Consequently, the mimeographed remedial exercises stressed practice in this latter procedure while the oral remedial work was concerned with both types of difficulties.

The experimental method used in this study was of the matched group type. The pupils in all of the schools were paired, individual with individual, on the basis of intelligence and a measure of previous achievement in ninth grade mathematics. The latter is a better basis for predicting achievement in ninth grade algebra than the former. In a preliminary study a correlation coefficient of .67 was found between achievement at the end of five weeks and at the end of 36 weeks in algebra. For this same group of pupils intelligence quotient correlated .56 with achievement at the end of the year. Furthermore, such factors as sex, chronological age, home environment, study habits, etc., have been exerting whatever influence they may have upon achievement, during the six or more weeks learning period in the subject matter into which the experimental factor is to be introduced. Therefore, equating the pupils on the

basis of the achievement during this period would tend to control the operation of such factors.

In the schools where the experiment was begun with the second semester students, the "Breslich Algebra Survey Test—First Semester" was used as a measure of the pupils' previous knowledge of algebra. This test covers primarily formulas, linear equations, simple verbal problems, and graphing. The schools which started the work during the first semester used a composite score of several algebra tests as a measure of previous achievement.

Seven schools participated in the experiment. One of these schools merely used the materials. The other six schools used the materials under a controlled experimental procedure. Rather than use one school and carefully control as many factors as possible, it was deemed more advisable to attempt to obtain a variety of schools and several teaching situations where the experimental factor could be put into operation. Often the results of an excellently controlled study have been conditioned by the limitation that the subjects comprised a select group. Furthermore, exercising too rigid control over the groups involved and the methods used tend to restrict the teacher to such an extent that a typical situation no longer exists. Therefore, in this study, some degree of control has been sacrificed in order to obtain a more representative sampling.

Table II gives the facts available concerning the seven coöperating schools. This table shows the variations in size and type among the schools. Schools "A," "B," "C," and "E" are located in Minneapolis, Minnesota. School "D" is in a town of 4500 population and school "G" in a town of 2000 population.

TABLE II

DATA CONCERNING SCHOOLS USED IN THE EXPERIMENT

School	Type of School	Total Enrollment	Number in Experiment	Number of Pairs	Average I.Q.	Number Weeks
A	Parochial	564	100	28	117	3
B	Public Jr.	1400	130	30	112	10
C	Laboratory	400	170	55	118	40
D	Public Jr.-Sr.	800	113	29	108	18
E	Public Jr.-Sr.	2827	154	43	110	18
G	Public Jr.-Sr.	165	49	20	102	5

The methods of instruction employed by the teachers can be classified under two categories; namely, constant time and constant content,

and constant time and variable content. Under the first classification is included that type of instruction where the teacher gives the same assignment to all the pupils and requires that it be completed at a given time by all the pupils. Under the second type the teacher uses a differentiated assignment with the time element the same for all the pupils. Most of the teachers used some form of this latter type of teaching procedure. None of the teachers made use of a purely individual type of instruction. Experimentation appears to favor the constant time variable content method over both the constant time constant content and the individual method of teaching.

The participating teachers were given instructions to conduct the classes in the control group under their customary procedure with a minimum of emphasis on vocabulary. The following general directions were given to each of the teachers:

"Give the diagnostic vocabulary tests at the beginning of each unit and again at the end. This test is to be used in both the experimental group and the control group. The purpose is to determine, at the beginning of the unit, the words and expressions which are unfamiliar to the pupils and which need to be stressed in the remedial teaching in the experimental sections. The test is repeated at the end of the unit in order to have a measure of improvement made by each of the groups on the vocabulary of that specific unit of instruction. Allow the pupils sufficient time to finish the test.

"The remedial vocabulary instruction is to be used only in the experimental sections and should be built around the mimeographed remedial vocabulary exercises. These can be employed in conjunction with group explanations of new materials in which use is made of the vocabulary items. They can also be utilized as a basis for a vocabulary review. Some suggested procedures for the teaching of vocabulary are as follows:

1. Use of the results of the diagnostic vocabulary tests.
   a. Put word list on the board and discuss.
   b. Pupils make and keep a copy of the word list with one or more examples.
      For example: Perfect square. 36; $4x^2$; $9x^6$; $(x + y)^2$
   c. Frequent short vocabulary tests over the word list.
      For example: 1) Have pupils write on paper examples of the vocabulary items.
      2) Put examples on board and have pupils indicate the word or expression which best describes them.
2. Use of vocabulary in explanations to the group and to individuals during supervised study.
   a. Make it a point to use the expressions whenever possible.
   b. Insist and encourage pupils in using correct vocabulary."

Every teacher was contacted at least once each week. At this time problems were discussed, the work of the previous week reviewed, and any necessary materials given out and explained. The teachers were questioned as to what additional methods they had employed in teaching vocabulary and suggestions were made for teaching the vocabulary of the new unit. Rather than prescribe a definite amount of time to be spent each day on vocabulary instruction, it was believed to be a better procedure and more in keeping with the desire to utilize typical teaching situations, to ask each teacher to keep a record of the approximate length of time used for such purposes. In all but one of the schools the same teacher taught both the experimental and the control sections in that school.

Table III shows the results for this combined group on the unit concerned with simultaneous equations. The unit test served as a measure of achievement. The 120 pairs were made up of the 29 pairs from school "D," 28 pairs from school "C," 43 pairs from school "E," and the 20 pairs from school "G."

TABLE III

COMBINED RESULTS FOR UNIT TEST SIMULTANEOUS EQUATIONS 120 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 35	27.8	23.6	+4.2	3.3096	<.01
Lower 35	17.7	14.1	+3.6	2.6201	<.01
Entire 120	22.6	19.1	+3.5	5.3321	<.01

All the differences in the above table are in favor of the sections in which vocabulary instruction was employed. Furthermore, all of these differences are highly significant; there being less than one chance in 100 that differences this large or larger could have been obtained by chance.

For the special products and factoring unit the combined group of 100 pairs consisted of 29 from school "D," 28 from school "C," and 43 from school "E." Table IV presents the results of the unit achievement test.

TABLE IV

COMBINED RESULTS FOR UNIT TEST SPECIAL PRODUCTS AND FACTORING 100 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 35	39.9	31.4	+8.5	5.3324	<.01
Lower 35	23.2	17.5	+5.7	2.9656	<.01
Entire 100	31.8	25.2	+6.6	6.2030	<.01

Each of the above differences is in favor of the experimental group and are in all cases highly significant. In this particular unit the average achievement score for the entire 100 pupils in the experimental groups was slightly higher than the average for the upper 35 pupils from the control groups. While this difference is too small to be significant, the fact remains that for this unit the achievement of the entire vocabulary group is practically the same as the achievement of the best pupils in the non-vocabulary sections.

The next unit for which combined groups were obtained was the unit on fractions in algebra. For this unit there were 100 pairs composed of 29 from school "D," 28 from school "C," and 43 from school "E." The results of the unit test are shown in Table V.

TABLE V

COMBINED RESULTS FOR UNIT TEST FRACTIONS — 100 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 35	23.2	19.5	+3.7	2.5748	<.01
Lower 35	13.8	10.0	+3.8	2.5832	<.01
Entire 100	18.3	15.2	+3.1	3.7545	<.01

As in the previous units reported the differences are all highly significant and in favor of the vocabulary groups.

A combined group of 127 pairs was available for the unit on powers, roots, and radicals. This group was composed of 29 pairs from school "D," 55 from school "C," and 43 from school "E." In Table VI are presented the comparisons of the means for this unit of instruction.

TABLE VI

COMBINED RESULTS FOR UNIT TEST POWERS, ROOTS, AND RADICALS
127 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 44	51.9	46.2	+5.7	3.5163	<.01
Lower 44	29.7	25.4	+4.3	3.1455	<.01
Entire 127	40.4	35.9	+4.5	4.5189	<.01

Again the differences are all in favor of the groups in which vocabulary instruction was employed and they are all highly significant.

For the unit on ratio, variation, and proportion it was possible to obtain only 55 pairs all of whom were from school "C." The results for this unit test are shown in Table VII.

TABLE VII

COMBINED RESULTS FOR UNIT TEST RATIO, VARIATION, AND PROPORTION
55 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 19	57.8	50.7	+7.0	3.1140	<.01
Lower 19	31.7	30.2	+1.5	.7009	.49
Entire 55	44.3	38.4	+5.9	3.5128	<.01

The differences are all positive and are highly significant in the case of the entire 55 pairs and the upper 19 pairs. The difference for the lower 19 pairs is not statistically significant. This, of course, may have been due to the small number of cases used. From the results shown in this table, however, it appears that vocabulary instruction is more conducive to higher achievement on the part of the better pupils than the poorer pupils in a unit concerned with ratio, variation, and proportion.

The final survey test was given at the end of the school year to 127 pairs; 29 from school "D," 55 from school "C," and 43 from school "E." The results for this test are shown in Table VIII.

TABLE VIII

COMBINED RESULTS FOR FINAL SURVEY TEST
127 PAIRS

Pairs	Experimental	Control	E — C	t	P
Upper 44	68.0	59.8	+8.2	4.7371	<.01
Lower 44	35.5	28.7	+6.8	3.2015	<.01
Entire 127	49.5	43.5	+6.0	5.4460	<.01

The results on this final survey test show a significant difference in all cases for the sections into which the experimental factor was introduced. These findings corroborate those for each of the individual units of instruction and thus lend further support to any conclusions that may be drawn.

SUMMARY

1. With but few exceptions the pupils in the vocabulary groups achieved higher on the achievement tests than did the pupils in the control groups. However, on the units for which the results for several schools were combined, the differences were in all cases in favor of the vocabulary group and highly significant.

2. When the findings for the separate schools were considered, the units of instruction in which vocabulary instruction appeared to have

the most favorable effect upon algebra achievement were, a. Simultaneous Equations, b. Special Products and Factoring, and c. Powers, Roots, and Radicals. When the results for the individual schools were combined, a reliable difference held also for the unit on fractions.

3. The unit of instruction in which vocabulary instruction seemed to have the least effect upon algebra achievement was, Positive and Negative Numbers. This may have been due in part either to the fact that this particular unit was taught during the earlier part of the year's work and as a result the pupils had not developed a background in mathematical vocabulary or to the small number of cases obtained for this unit.

4. When the schools were considered individually, in two of them more reliable positive differences were found for the better pupils than for the poorer pupils, in one of the schools the reverse was found to be true, and in the remaining two schools it was impossible to discriminate. When the combined results were considered, highly significant positive differences held for both the better and the poorer pupils with the exception of the unit on ratio, variation, and proportion. For this unit it appeared that the better pupils achieved relatively higher than the poorer pupils when the teaching of mathematical vocabulary was stressed.

5. The findings for the unit and sub-unit achievement tests were supported by the results of the survey test over the entire year's work.

6. The teachers in the study reported that they used on the average 7.5 minutes of each class period for vocabulary instruction.

7. A questionnaire to the teachers resulted in very favorable responses and reactions to the experimental factor.

8. A questionnaire to a sampling of the pupils produced favorable replies in 32 out of the 35 cases used.

Conclusions which may be made from the above findings are conditioned by certain limitations which must necessarily be recognized. These limitations are as follows:

1. Any statement concerning the achievement of the pupils should be qualified as achievement determined by the tests used in this study.

2. The teacher factor was not controlled. A number of teachers were involved in the study rather than one teacher for all classes. This did result, however, in the experimental factor being put into operation in a variety of situations and classroom procedures.

3. A certain amount of mathematical vocabulary was learned by the pupils in the control group.

4. No attempt was made to measure the retention of either the vocabulary of the algebraic knowledge after a period of time had elapsed. Perhaps this superior achievement on the part of the vocabulary pupils was temporary.

5. No attempt was made to measure other possible outcomes of the vocabulary instruction except as these other outcomes might have influenced achievement.

In a controlled study of this type the experimental factor must of necessity be quite limited in scope. Since vocabulary is only one aspect of the broad field of reading, this study represents only a small beginning of what should be attempted in the teaching of ninth grade mathematics. The author leaves for investigators in this field the relation of these other phases of reading to achievement in algebra. It should not be inferred, however, that the problem investigated in this study has been settled once and for all. Nevertheless, it can be said that, under the conditions and limitations of this experiment, these pupils have demonstrated superior achievement in algebra when the vocabulary of the subject has been stressed.

DO APPROXIMATIONS SOMETIMES SERVE EQUALLY WELL?

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THE methods of figuring and indicating percents in the tables of my article in the February number of the *Journal of Educational Research* need a little explanation, at least.

In my classes I have frequently said:

> "Data are given statistical treatment in order to make them tell their story. The rule is: Do whatever you need to do in order to force data to reveal their real significance."

Turning to *Approximate Computations*, the Twelfth Yearbook of the National Council of Teachers of Mathematics, I read on page 118:

> "Any numerical data of measurement are at the most as nearly perfect in their approximations of the exact measure as the precision of the instrument of measurement allows."

And again from the "Foreword" of the same volume, last paragraph, I read:

> "While we all admire the purity of our fair science, let us not be dazzled by its white brilliance, but learn to appreciate its facile flexibility, its adaptability to whatever may be the special purpose in mind. Mathematics does not always dictate what shall be the form of the answer. Let us learn to develop common sense in stating and interpreting problems and to apply the approximate mathematical tools in finding a quantitative answer to suitable and reasonable approximativeness. Let not mathematical technique smother common sense; may its study develop not pedantry but power."

Specifically, the tables on pages 431-433 of the February issue of this Journal may be criticized for not following a uniform technique in figuring the percents and in rounding off the answers. Ridlon in Tables I and II used slide rule approximations, and carried to two decimal places.

Kett in Tables III and IV figured her percents, rounded off without decimals, and then adjusted for a total of 100%. Her percents for Table III run as in line 1 below. They should run, with two decimals as in line 2 below:

(line 1) 9.00 15.00 15.00 23.00 6.00 17.00 6.00 6.00 3.00, total 100.00
(line 2) 8.82 14.71 14.71 23.53 5.88 17.65 5.88 5.88 2.94, total 100.00

Every rounded off result is according to the usual rule, except for 23 and 17. But Miss Kett was reporting to intermediate grade teachers with little or no statistical training. She wanted the story in its simplest form. She wanted the total to be 100. Since in seven cases, (percents 9, 15, 15, 6, 6, 3), increases had been made, some decrease had to be made. These were made on 23 and 17, and not quite according to rule. But the table looked reasonable, for if 1 equals 3 percent, then 2 should equal 6 percent, 3 should equal 9 percent, and 2 + 3 or 5 should equal 6 percent + 9 percent or 15 percent. All of this the teachers would follow easily. To be sure, the final zeros should have been left off in Table III as they were in Table IV. In Table IV, Miss Kett made one adjustment (in 49 percent) not according to the usual rule, but this was needed in order to make the total percents add up to 100.

Mr. Houghton rounding off percents at one decimal place had to make a choice similar to that which Miss Kett was forced to make, and his decision was correct.

Referring again to page 118 of the Twelfth Yearbook, we may inquire as to the precision of the measuring instrument. The tests used were the Wilson Process Tests, in each of which there are 25 simple examples. While the tests are so constructed as to cover all or most of the primary facts in a process, a reasonable proportion of the related facts, and the chief process difficulties, yet no one would claim for any of these tests or for any other tests available, a perfect measurement of pupil ability in a process.

Since, then, all measurements are at best rough approximations, is there any point to finding fault because reports were made to coöperating teachers in a form that involved adjustments of percents as well as rounding off, or that in another case slide rule results were used.

Any one who will study the tables of this article from the standpoint of the total story and in comparison with many other similar studies will quite surely conclude that the few liberties taken with statistics were justified by the purposes, and that the main conclusions are not modified nor are they any less well supported by the treatment given the data.

Furthermore, in the interests of economy of time for young research students, I want to urge that in work of this kind, slide rule approximations serve every purpose. They are as accurate as the original measurements. At best a general conclusion is only another approximation. It can be nothing more. Under such circumstances the only purpose served by meticulous figuring uniformly carried out, is to satisfy some reader who does not understand approximations and their equal value for some purposes.

THE ENERGIES WHICH DEVELOP THE MIND

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THE energy for learning, with its activities of organizing ideas and maintaining the conscious direction of mental life, is a part of social synergy and of the unifying energy of personality. With social synergy it extends the organization of ideas to include their relations with new learning: with the directing energy of personality it extends the experiences of self-organization to include more definitely the organization of ideas from knowledge of fellowship activities. This double relationship increases greatly the responsibility of the school in its work to add the getting of knowledge to the activities of experience, and also to enrich the thought and judgment for the social ends of the personal relations in organized society.

In the first six years or so of child life, the mind may be thought of as developing through the action, in the cerebrum of the brain, of a socializing energy which distinguishes between sensations to which the nervous system responds and those sensations first felt in relation to an inner dawning sense (or insight) of companionship. This sense of the cerebrum begins the development of what becomes real experience, defined as "the actual living through an event or events." This process of development begins with the retention of ideas as the means by which sensations become experiences of the growing mind. These experiences of the young child are, of course, very incomplete since the mental events of his experiences are very incomplete. Learning in these years is more fully accomplished with regard to play activities and in self-training for simple physical skills.

When the child enters the elementary schools, he meets a situation organized in a definite way for the purpose of guiding groups of children in their efforts to learn; and particularly how to learn certain specific bodies of knowledge and kinds of skill. This is a new kind of experience. It is also given to them in a very different way from their actual needs to learn in their own plays or efforts for skill. The school, if thus separated entirely from the direct way to experience, would be an impossible situation for its definite purpose of education. The problem is: How can it be made the really essential situation for the energies of synergy, aptitude, and personality to acquire their fullest effect? If we are to develop in each and every individual, their possibilities for civic and

social life by the age of twenty-one years, to mention the age for citizenship, the school needs to meet the full needs of the social educational situation. Providing we so conduct the school that these three naturally active energies are used to the extent possible within each individual, education becomes possible for all.

Social synergy is the underlying activity upon which the other possibilities for human activities in life depend. As the energy which organizes ideas in an ever widening fellowship relation it works even as a self-condemnation by the criminal acting against society.

It is the aptitude for learning, however, which acts as a definite and growing mental ability and, though not directly included in what are called tests for mental age, yet it seems to require, for successful action, a fuller situation for growth than the present school generally includes as part of its activities. Aptitude for learning includes the underlying power to gain some knowledge from the common experiences of life in a direct way. Such learning, however, is but a little more concerned with the general organization of experience than is the action of social synergy.

In the school situation, however, the organization of ideas to be studied is not generally made a part of the present personal experiences in the out of school life of the children. In the school study situation the new organization of ideas needs to be presented in such a way that the meaning comes as an event or events lived through by the student vicariously. This is the essential nature of the aptitude for learning in school or out of school when the attainment of knowledge is recognized as a common experience. It may be described as a sympathetic participation with other minds in experiences by which a common knowledge is attained. This energy of aptitude for learning also acts with the directing action of personality for its unifying outcome in the processes of development. In this connection, personality acts in response to the presentation of an organization of ideas, as an ability to retrace for itself the meaning for common knowledge and to accept or not the outcome as a result of the process of thinking. But this energy of personality acts also for the unifying of common relations with one's fellows. For most of the work in the elementary school this final act of personality, as a member of society, is largely an act of confidence, or of faith, in the outcome of school training. This act of confidence, however, is actually an evidence of the far reaching effects of the aptitude for learning.

Consider the school situation, now, as one in which the minds of the

children are awake with energies which are ready for activities in the learning of new ideas much as their muscular bodies are for active games. From this point of view both the schoolroom and the playground need one common caution if all is to go on as it should, which is: take care in each situation that the activities provided for or by the pupils be adapted to the present abilities of their mental and of their physical growth. This caution is not so necessary for the little children in the two lower grades. Either a separate playground or a separate time for recess is generally provided, and learning to read is not, nowadays, often preceded by saying the abc's, beginning the phonic study of words and holding attention to the pronunciation of the words rather than to be sure that the meaning of the sentence is understood as expressed in written symbols. Teachers of the primary grades today are directing their work much closer to the natural action of the aptitude for learning than is done in the other grades. They accomplish this in the teaching of reading and in other beginning subjects, by using activity methods by which the new symbols for reading and number work are learned in use under arranged conditions which gradually develop the ability to experience ideas from new symbols in place of the old ways of spoken words, and in each step the entire experience is carried out understandingly. A few years ago an Assistant Superintendent in the schools of Chicago, James E. McDade, introduced a method of teaching silent reading without previous teaching by oral methods and the recognition of separate written or printed words and phrases. This method had the advantage of enabling the children to learn, directly, the thought expressed so that reading became at once a pleasure.

To meet the situation in the middle grades the school needs to organize the conditions under which each pupil actually learns for himself to appreciate experiences from related ideas. That part of a common knowledge or skill upon which to build further experiences needs always to be within the range of his present aptitudes for learning. In the middle grades these situations are quite largely concerned with the attainment of certain skills in the use of the symbols of language, of numbers, and of other mental tools. The effort to attain mental skills is a natural interest for minds at the ages of eight to ten or twelve. However, this aptitude includes the sense of common purposes for the use of the skills and requires the understanding of the connections of skill with the attainment of knowledge. The difficulty is to so present the meaning for what is to be a common knowledge that the successive experiences of learning

may each be a part of the whole. The skills connected with anticipated ability to use knowledge need to be working skills and not just a play for skill as a talent in itself. Physical skill is a satisfaction in itself but a trained mental skill has meaning only as a means to successfully make use of knowledge when the need occurs. These skills cannot be usefully obtained as a separate kind of play activity but need to be encouraged in the middle grades through an appreciation of their value in understanding and using knowledge. Good reading leads to a careful study of language and of the best use of words rightly spoken. Appreciative use of numbers comes from experience in solving real problems.

Nation-wide testing through the grades of the elementary school gives the facts about the critical years at which there are urgent interests in the successive growth of aptitude for learning. Between the ages of ten and twelve, in fifth and sixth grades, the interest in skill for speed is merged more and more with a desire for comprehension and the skillful use of knowledge for wider understanding. There does not seem to be any other cause for this recognized mental hunger than a failure in the third and fourth grades to nurture the energy for study activities in connection with skill in such a way as to maintain at all times a natural development of the learning activities. This situation of over attention toward perfecting excessive mental skills independently of the uses of skill as a needed tool by which thought is well expressed or the solution of an arithmetic problem easily computed, often puts the wagon before the horse. The aptitude for learning requires the organizing of ideas as a result of experiences which include the needed skill by which comprehension is enabled to apply knowledge as needed. Comprehension for each advance in learning is the energy by which the needed skill is naturally directed as a means of using knowledge.

There is evidence of misdirected efforts to maintain an educational progress through the school grades from three to seven at a uniform rate from year to year for each pupil in relation to his growth in mental ability. This misdirection is due to insufficient understanding of the various situations related to the action of the different mental energies involved, and to their interaction under changing social influences, including emotions. There may be a stimulation of the aptitude for learning at times, or a redirection of it to some special talent, or to an emphasis on the unifying energy of personality before ideas are sufficiently organized for the real meaning of common knowledge to act as a basis for thinking.

School officers and teachers recognize the influence on the school of such changing influences and undoubtedly will always have to meet some of them as best they can. Others of these situations are more or less a result of conditions which may be controlled to the advantage of school education. A fuller understanding of the natural energies which develop the mind will help to avoid difficulties due to an overtraining for mental skills in advance of their particular use.

So far in this discussion, aptitude for learning has been used as a rather inclusive term for the energy upon which school education depends for its success. It has certainly an important part in the development from childhood to maturity. The activities of this energy are also important in life before school age, and for continued success through maturity which calls for its presence to meet new situations. How its activities may be best used in the school situation is of essential importance because society is responsible for the development of its children during these ages.

Educational research has hardly opened a way as yet to a study of the school activities in which energies of mind action respond to the conditions for education. Direct measurements of the results of energies of nature depend upon the relation of the results to the way these energies can be directed in their action. Physical scientists find ways of measuring the results of energy action, the source of which is as yet a theory, by discovering the direct ways and conditions for its practical use. For the school it is as yet a theory as to the real source of the action of aptitude energies for organizing ideas, and for learning, as well as for the unifying action of personalities. Society is, however, the result of their activities. The school is a needed means for the growing organization toward definite results of these active energies. We now have many experimental efforts to get results each of which is guided by some particular experiences and general theory.

The purpose of this discussion is to suggest the possibility of finding the results of the school situations as they are, under the present conditions, and analyzing the measurable results of the present outcome in relation to the general activity of the energies of the mind; not for the median attainment, but for the particular difficulties of class work and of individual success. On this basis all experimental efforts would be directed to the results shown of better conditions discovered in relation to the activities of the energies of aptitude and of the unifying action of personality.

REVIEWS

Address all communications relative to book reviews to Editor Kai Jensen, University of Wisconsin, Madison, Wisconsin.

WITTY, PAUL AND KOPEL, DAVID. *Reading and the Educative Process* (New York: Ginn and Company, 1939), pp. x + 374.

Although, as suggested in the foreword, this book may be thought of as a treatise on remedial reading, it is really much broader. The authors' discussion of reading provides a vehicle for their view of the educative process. The general aim is to promote fundamental changes and improvements in the entire language-arts program. They state that in addition to providing reading experience within the ability of the reader, a series of reading and related experiences which will extend and intensify each child's interests should be developed.

After emphasizing interest as a factor in reading, there are discussions on identifying the poor reader, remedial programs, preventive treatment, causation and analysis of reading difficulties, the clinical approach, and trends in instruction. The appendix gives the authors' diagnostic child study record, an interest inventory, lists of representative reading tests, and book lists. It is held that, except for very severe cases, the poor readers can be helped by the classroom teacher. Literature in the field has been covered in a thorough manner. Some will disagree, however, with the authors' evaluation of certain materials.

The view that "instruction in reading be delayed until the children's background of experience and mental growth enable them to find meaning in the tasks presented to them" seems justified. Reading readiness in the primary grades is properly emphasized but the need of reading readiness at the upper levels is barely mentioned. The authors are skeptical concerning the need of mechanical devices such as the metronoscope and the ophthalmograph for pacing and photographing eye movements in the reading clinic. "Not only does the evidence call sharply into question the claims for the use of the ophthalmograph in reading situations, but the studies also raise serious doubts as to the desirability of eye-pacing with flash cards, the metronoscope, or any other device."

Apparent contradictions appear in some instances. After discarding measurement of eye movements (p. 142), it is later stated that there is a "supplementary type of diagnosis, helpful in understanding reading difficulties of some children, made by studying their eye movements in reading" (p. 240). Similar, although perhaps not as serious, contradictions occur with respect to emphasis upon: (1) visual defects as determinants of reading disability, and (2) the significance of letter reversals and handedness. Thus there is a tendency to set up a diagnostic and remedial program which is not necessarily in harmony with the experimental findings previously cited.

Although the authors condemn the kinesthetic-oral method as used by Fernald and Keller, and the phonetic method as used by Monroe, it must be admitted

that these workers have achieved marked success in remedying reading disability with their techniques. One of the most fundamental things needed in training the non-reader to read is establishing the left to right sequence in word perception. With proper motivation, this can be achieved even with the crude A-B-C method as employed by Hinshelwood. The kinesthetic and phonetic methods are marked improvements over the A-B-C technique.

This book is not a manual on diagnostic and remedial reading. The literature is analyzed, and the authors' program is presented as an integral part of the educative process. It is obvious from the report that highly satisfactory progress in reading has resulted from the use of their techniques. Nevertheless, many will sense a lack of detailed, systematically presented information concerning procedures and analysis.

Witty and Kopel have written a highly stimulating treatise on reading. Their emphasis upon the interest factor in addition to development of skills will receive a hearty welcome from many educators. Instruction in reading has been too greatly dominated by routine exercises to bring mechanical perfection without realizing that maximum growth is achieved by the integration of numerous factors. Thus reading is considered efficient "only if meanings are grasped, goals attained, and knowledge organized."

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BENNETT, C. C. *An Inquiry into the Genesis of Poor Reading.* Contributions to Education, No. 755 (New York: Bureau of Publications, Teachers College, Columbia University, 1938), pp. viii + 139. $1.60.

In this monograph the author reports an experiment designed to investigate the etiological importance for poor reading of a child's "environmental background and general life adjustments." Fifty poor readers were selected from grades 2B, 2A and 3B on the basis of a rating by their teachers and their performance on two standardized tests. While the mean reading retardation of the group was 1.04 years, certain of the "poor readers," as indicated by their relatively slight retardation of .3 years, were included primarily on the basis of teachers' ratings of their performance in advanced class groupings. These the author regards as poor readers ". . . relative to the standards imposed by their immediate situation" (p. 61). "As one of the major emphases of the investigation," he says elsewhere (p. 6), "we shall regard reading essentially as an adjustment rather than as a skill."

A control group was composed of fifty average readers, each of whom matched a member of the experimental (retarded) group with respect to sex, grade placement, class grouping, chronological age and intelligence quotient. In five of the subject pairs, differences in chronological age of over one year were allowed, the poor reader in each instance being the older. Similarly, in seven cases there was more than a year's difference in mental age; the difference, as above, favoring the poor reader. The mean intelligence quotient of both experimental and control groups was approximately 100.

Certain aspects of the children's (1) personality characteristics and social adjustment, (2) home environment, (3) health and phyical status, (4) play activities and interest and (5) previous experience with reading were inquired into. With the exception of the data on school history and hand and eye dominance all information was obtained by means of questionnaires. These were administered

to the children as well as to their mothers and teachers. With minor exceptions the author found it possible to obtain no estimates of the reliability and validity of the information he gathered. For such "temperamental and behavioral characteristics" as even temper, obedience, persistence, talkativeness, etc., "Correlations for parent and teacher ratings of the same trait were in every case positive, but small. Coefficients were of the order of .20" (p. 89).

In general, although the monograph is essentially an experimental report, the presentation of statistical material is such as to make critical evaluation by the reader difficult. Critical ratios, while often stated in the text, are seldom put up in tabular form and probable errors of correlation coefficients are omitted altogether.

Dr. Bennett condenses his general results in these words (p. 122): "As revealed in group averages, we must report the poor readers to be a sampling of fairly normal school children." Moreover, of the few differences noted (the majority of which are of questionable statistical reliability), only one, as is pointed out (p. 123), is free from possible interpretation as effect rather than cause of poor reading.

To the clinician the principal value of the book—and this a kind of negative, humility-breeding value—will be found in Chapter X. Here, in a series of case analyses, Dr. Bennett illustrates rather convincingly the fact that complexes of the generally-accepted etiological factors of poor reading may be found in many very good as well as many very poor readers. While much else of clinical value is said in the book, little of it seems to be new.

To the future researcher into the etiology of poor reading, however, the book is of greater significance. In scattered discussions of his inability to interpret given negative findings, Dr. Bennett makes the following important methodological points:

1. Where a given result may be brought about by many different conditions (as in poor reading) it will be difficult to demonstrate with statistical reliability the operation of any single condition among a small number of cases (p. 123). Where a small sample is employed it will be necessary in order to test the effect of any one variable to control a majority of the others.

2. Once reading instruction has begun it will not be possible, with regard to many characteristics of the child, to separate cause and effect. Poor reading may breed many ills (p. 93).

3. In studying etiological factors it will be of immense importance to control or measure the pedagogical effectiveness of a child's teachers. A given handicapping condition may or may not cause reading difficulty depending upon the skill with which the teacher takes it into account (p. 119).

4. A combination of prejudicial factors may be more likely to produce a poor reader than may any single factor. Thus, it may be necessary to study various complexes of possible etiological conditions (p. 119).

An extensive review of the literature on certain of the factors associated with poor reading is included in the book.

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HEATON, KENNETH L., AND WEEDON, VIVIAN. *The Failing Student: A Study of Academic Failure and the Implication for Education.* (Chicago: University of Chicago Press, 1939), pp. x + 286. $2.50.

This is an interesting examination of 938 college failures, a study valuable,

not for what it proves, but for what it hints. Made at the suggestion of the administration in four Michigan colleges to determine (1) why failure occurred and (2) what could be done to minimize further college failures, it leads the reader to wonder whether or not these "intuitive suggestions" will bear fruit in actual changes in administrative techniques and procedures.

There are several pages in the book that well might be required reading for college faculties. "He seems to deal out an assignment with the unconcern of distributing a deck of cards." "The courses are taught . . . over and over by the same notes for twenty years." "He lectures on everything except the assignment." "It is my opinion that these instructors are very capable in their respective fields but they are not 'cut out' to be teachers." In fact, the very "quotability" of such excerpts may divert attention from the analysis of the problem and the suggestions for its amelioration.

It is unfortunate that the authors have not stated their analysis in a more clear-cut fashion. The principal reason that college students fail is that colleges themselves can't make up their minds why they exist. They permit the entrance of too many annuitants from the compulsory education of the secondary schools. This opinion the authors state in the final chapter; but the reader must then go back to reconsider the reasons peculiar to individual cases in the light of the general cause.

The book, however, is well worth rereading.

By permitting students to analyze the reasons for their own failures the authors often make especially valuable points in a few words. Thus one boy says that "the price you pay for learning by experience in college is dear" and so lights up the whole plea for a more adequate guidance service.

The authors suggest that colleges look at students, not as possessors of a specified number of marks and grades, but as products of complex inter-relationships between emotional, social, mental, and physical backgrounds and growth patterns. In this view an A in "Lit." may not be half as important as "preparation to live independently away from home and parents."

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ATKINSON, CAROLL. *True Confessions of a Ph.D.* (Edinboro, Pennsylvania: Edinboro Educational Press, 1939), pp. 89. $.50.

This little volume does not of its own weight merit the amount of space here devoted to it. The problem treated does deserve careful consideration in the reorganization of the program and procedure of the graduate school. (Stewart's recent novel, *Doctor's Oral*, from the press of Random House, 1939, portrays some of the same conditions in the graduate department of English.) *True Confessions of a Ph.D.* pictures the experiences of a graduate student in the field of education. Since the reviewer had no difficulty in recognizing certain of the higher institutions and professors characterized, it is entirely possible for the interested reader to do likewise.

In recounting his "trials and tribulations," the author devotes approximately the number of pages indicated to the following topics: twenty-eight to his father, public school education, student activities and fraternities in college life, and a characterization of his college professors; three to work at the Master's level;

thirty-six to his doctorate program; and twenty-two to the experiences of other doctorate candidates and to a critical analysis of the Ph.D. program, in other words, a sort of "graduate student" or "campus" philosophy of graduate work. Some of the passages are amusing, while others are irritating. On the whole, the "confession" probably was worth writing and may prove useful to graduate students and professors, if the exaggeration, the emotional halo, and the feeling tone are tempered somewhat. Of course, he has over-dramatized the role of the faculty as an academic adversary seeking every chink in the student's mental and physical armor. Undoubtedly, as the author becomes farther removed from his period of graduate study and the physical and mental stress involved, his increased maturity will cause him to see some of the problems discussed in a different light. Like most of us, he probably will learn more after taking the doctorate degree than when on the road to the Ph.D. At that, in certain instances he shrewdly analyzes his own mental and physical equipment, and identifies some of his failures and mistakes on the road to the doctorate. For example, he speaks of the nine-hundred page first draft of his thesis, which later was reduced to some three-hundred pages. Presumably, the little series on radio education which the author is publishing at Edinboro, Pennsylvania, represents the remainder or the original nine-hundred pages.

It will be generally agreed that graduate faculties should know the reactions of students, whether right or wrong. If the students' impressions of the graduate program are incorrect, the challenge is a problem for educational interpretation. If their criticisms are sound, the road to reform in curriculum and method is indicated. Certainly this point of view applies, not only to the higher institution, but also to the public schools.

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BEALL, ELIZABETH. *The Relation of Various Anthropometric Measurements of Selected College Women to Success in Certain Physical Activities.* Contributions to Education, No. 774 (New York: Bureau of Publications, Teachers College, Columbia University, 1939), pp. vii + 68. $1.60.

The author's problem was "to find out whether there is any relationship between various structural anthropometric measurements of selected college women and their success in basketball, swimming, tennis, and the modern dance."

In order to find an adequate sample the directors and staffs on the departments of physical education of Barnard, Goucher, Vassar, Smith, and Wellesley colleges selected the upper 15 percent in skill (called the successful group) and the lower 15 percent in skill (called the unsuccessful group) in each of four activities: basketball, swimming, tennis, and the modern dance. Information relative to age, race, nationality and experience in physical education activities was obtained through a questionnaire. The groups were then reduced to approximately an upper 10 percent and a lower 10 percent in skill in each activity, distributed as follows: basketball 96, swimming 74, tennis 140, and modern dance 73, with a total of 383 cases.

Eighteen measures of bony structure were studied and anthropometric landmarks were located. Measuring instruments consisted of anthropometers, scales, sliding wooden calipers, spirometer, and tape, with all measurements except weight recorded in centimeters and millimeters. The mean and standard deviation for each measurement in the four activities and

the significance of the difference between means were then computed. Comparisons of the successful and unsuccessful groups in each activity, of the successful group in one activity with the successful groups in the other activities, and of the unsuccessful groups in each activitiy with the unsuccessful groups in the other activities were made.

The statistical analysis showed that successful basketball players were found to exceed unsuccessful players in length of upper arm, length of hand, length of entire arm, length of foot, breadth of foot, and breadth of shoulders. Swimmers of the success group were found to weigh more, have broader hands, shoulders, and hips, deeper chests and larger chest circumference than those of the unsuccessful group. Longer trunks and legs and broader feet characterized those of the successful group in tennis. The unsuccessful group exceeded the successful group in most of the measurements in the dance section, indicating a tendency toward a smaller build for dancers.

The author concludes that "no one type of body build can be identified for any of the four activities investigated, but that specific structural characteristics seem to accompany success in certain activities."

The reviewer should like to call attention to two of the criteria employed for determining success in the activities. The author's supposition that an individual is "experienced" because he engages in an activity six times cannot be accepted as significant; therefore it is possible that there were no successful performers included in this study. Secondly, it is difficult to attach much significance to a study that combines the subjective ratings of five different groups of students investigated as independent groups. On the whole the report is interesting and suggests some possibilities for future studies of the type.

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RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

ADE, LESTER K. *Techniques of Visual-Sensory Aids*, Bulletin 509 (Harrisburg: Department of Public Instruction, Commonwealth of Pennsylvania, 1939), 62 pp.

This bulletin contains a summary of visual and sensory aids which may be used by teachers and teacher training institutions.

APPEL, LIVIA. *Bibliographical Citation in the Social Sciences* (Madison: The University of Wisconsin Press, 1940), 30 pp.

This manual provides principles and rules governing the citation of books and pamphlets, periodicals and newspapers, official reports and proceedings, government documents, and manuscripts.

DODDS, B. L. *That All May Learn*, The Bulletin of the National Association of Secondary-School Principals, XXIII, No. 85 (Chicago: National Association of Secondary-School Principals, National Education Association, November, 1939), 235 pp.

The author presents information on what has been written and done about adjusting the secondary school curriculum to the needs and abilities of all the pupils.

DOLL, EDGAR A. "Growth Studies in Social Competence," Reprinted from the *Proceedings from the American Association on Mental Deficiency*, XLIV, No. 2 (1939), pp. 90-96.

The author presents data on early results from using the Vineland Social Maturity Scale for the study of individual growth in social competence with normal and feebleminded subjects from which he concludes that the influence of environment and training is effective principally during the maturation period rather than thereafter.

DOLL, EDGAR A. "Preparation for Clinical Psychology," Reprinted from *Journal of Consulting Psychology*, III, No. 5 (September-October, 1939), pp. 137-140.

The author discusses present day clinical psychology, the future development of clinical psychology, and the requirements of a capable clinical psychologist.

DOLL, EDGAR A. "Social Maturation," Reprinted from *Proceedings of the Fifth Institute on the Exceptional Child of the Child Research Clinic of The Woods School, Langhorne, Pennsylvania* (October, 1938), 6 pp.

The author discusses maturation in social competence and its measurement.

ENGELBART, E. H., ET AL. *A Comparison of Reading Comprehension with Attainments in Other School Subjects at Various Mental Age Levels*, Pupil Personnel Study of Pupils in Minnesota Schools, Part I, Section 16 (St. Paul:

Minnesota State Department of Education, 1940), 33 pp. Mimeographed.

The State Testing Committee of The Minnesota Council of School Executives presents data from a thesis by Mr. Olaf E. Andreen, Senior High School Principal, Deer River, Minnesota, indicating that reading comprehension is an important factor in subject attainment.

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The author presents data from a study of the relationship between motor performance and physical growth and development of adolescent children.

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The Subcommittee on Educational Research presents a critical analysis of educational research with chapters on: whither research in education: research in child development; research in the measurement of abilities, aptitudes, and achievement; research in reading; research in guidance and personality adjustment; research in the structural aspects of educational finance; and suggestions toward a frame of reference for educational research.

HOLY, T. C. *Costs Per Pupil in Average Daily Attendance in Ohio City and Exempted Village School Districts from July 1, 1938, to June 30, 1939* (Columbus: Bureau of Educational Research, Ohio State University, February 1940), 22 pp. Mimeographed.

This report presents an analysis of the current expenses and total payments per pupil in average daily attendance in the 109 Ohio city and 75 of the 77 exempted village school districts for the school year, 1938-39.

KAPLAN, LOUIS. *Research Materials in the Social Sciences* (Madison: The University of Wisconsin Press, 1939), 36 pp.

This annotated guide to research materials in the social sciences includes references on: social science research methods; indexes to newspapers, periodicals, society publications, and government documents; guides to lists of periodicals, society publications, and newspapers; bibliographies; miscellaneous research aids; and guides to the resources of American libraries.

LUNN, J. E., ET AL. *Relation of Knowledge of Current Events to Other Factors in Education,* Pupil Personal Study of Pupils in Minnesota Public Schools, Part II, Section 3 (St. Paul: Minnesota State Department of Education, 1939), 36 pp. Mimeographed.

The authors present data on the knowledge of current events among seventh, eighth, and ninth grade pupils in rural and urban schools indicating the relationship of such knowledge to other factors in education including reading ability, knowledge of American history, quality of school work, economic status, intelligence, problem case incidence, personality, participation in activities, and newspapers and radios in the home.

LUNN, J. E., ET AL. *Relation of Knowledge of Current Events to Attainment in Other School Subjects,* Pupil Per-

sonnel Study of Pupils in Minnesota Public Schools, Part II, Section 4 (St. Paul: Minnesota State Department of Education, 1939), 32 pp. Mimeographed.

This bulletin continues the analysis of the relationship between knowledge of current events and other factors in education.

RUCH, GILES M., AND SEGEL, DAVID. *Minimum Essentials of the Individual Inventory in Guidance*, Vocational Division Bulletin No. 202, Occupational Information and Guidance Series No. 2 (Washington, D. C.: Office of Education, United States Department of the Interior, 1940), 83 pp.

The authors outline the general nature of the individual inventory, the significant types of entries, and discuss the possibilities and limitations of scientific measurement of certain aspects of the individual.

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This art aptitude test includes: permanent test section; student's test section; scoring and interpretation manual; and validation, reliability and rating manual.

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The author presents data from which he concludes that college students are much concerned about the teaching competence of their instructors and above all wish to be treated fairly.

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The author presents data from which she concludes that teachers though moving often do not move far, that the employability of applicants for teaching positions is influenced by certain factors of "social fitness for teaching," that teachers are amenable to community opinion concerning their out of school conduct, and that they participate in community activities but provide no great amount of leadership.

SHANNON, J. R. "A Comparison of Highly Successful Teachers, Failing Teachers, and Average Teachers at the Time of Their Graduation from Indiana State Teachers College," *Educational Administration and Supervision*, XXVI (January, 1940), pp. 43-51.

The author presents data from a study of the graduates of Indiana State Teachers College and concludes that superiority in scholarship and participation in some extracurricular activities are indicative of future teaching success.

CURRICULA AND OBJECTIVES

FERGUSON, WILLIAM C. "Instructional Problems of Generalized Science in the Senior High School," *Science Educa-*

tion, XXIV (February, 1940), pp. 72-75.

The author presents data indicating that senior high school general science is most effective at the twelfth grade level.

RUFFNER, FRANCES E. "Interests of Ninth Grade Students in General Science," *Science Education*, XXIV (January, 1940), pp. 23-29.

The author presents the results of a study of student interests in general science from which he concludes that certain subject matter is of more interest than other subject matter and that skills and related knowledge objectives are receiving more emphasis in science teaching than the social understanding objective.

WATSON, DONALD R. "A Comparison of the Growth of Survey of Courses in Physical Science in High Schools and in Colleges," *Science Education*, XXIV (January, 1940), pp. 14-20.

The author presents data showing the increased use of survey science courses in colleges and high schools.

LEARNING AND TEACHING

BERGMAN, GEORGE J. "The Effectiveness of Charts in the Teaching of Certain Units of College Biology," *Science Education*, XXIV (February, 1940), pp. 103-111.

The author presents the results of an experimental study of the use of charts in teaching certain topics in high school biology from which he concludes that charts are useful and aid retention in those topics.

CAPPS, F. OLIN. "A Survey of the Conservation Information Possessed by Pupils in Missouri High Schools," *Science Education*, XXIV (February, 1940), pp. 78-83.

The author presents data from which he concludes that while Missouri high school students have a fairly uniform mastery of conservation information, present instruction fails to produce results which measure up to desirable standards of accomplishment.

GRAY, H. A. "Pupil Evaluation of Sound-Film Components," *The Elementary School Journal*, XL (March, 1940), pp. 507-517.

The author presents the results of a study of the use of sound moving pictures in the teaching of conservation and concludes that pupils acquire additional concepts from repeated showings of a film.

HULSE, M. L. "Student Rating of Teachers in Service as a Teacher-Training Device," *Educational Administration and Supervision*, XXVI (January, 1940), pp. 1-12.

From a study of the rating of teachers by college seniors preparing to teach, the author concludes that few teachers are consistent in performance, and that rating of teachers is an effective way of introducing students to the practice of teaching.

VICKLUND, O. U. "The Elimination of Superstition in Junior High School Science," *Science Education*, XXIV (February, 1940), pp. 93-99.

The author presents the results of a study of the direct teaching of a general science unit intended to eliminate false beliefs from which he concludes that some superstitions were eliminated.

MEASUREMENTS, STATISTICS, AND SCIENTIFIC TECHNIQUES

HAUPT, G. W. "Evaluation of Students' Scientific Drawings," *Science Teaching*, XXIV (February, 1940), pp. 61-63.

The author discusses standards for grading the quality of drawings in science laboratory classes.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

Studies by the Office of Education.—Under date of January 15, 1940, the Assistant Commissioner of Education, Bess Goodykoontz, has issued a statement of studies in progress under the direction of the United States Office of Education. The fields include: organization and administration, supervision, legislation, finance, buildings, teachers, curriculum materials and methods, comparative education, measurement and adjustment, statistics, and bibliographies. The levels represented are: public elementary and secondary schools, colleges and universities, special groups, libraries, and other studies not classified according to level.

Vocational Education and Guidance.—The National Survey of Vocational Education and Guidance of Negroes, which was conducted in 33 states and the District of Columbia, 1936 and 1937, had its inception in the realization of serious occupational maladjustments among Negroes. In general, these maladjustments are similar in kind to those experienced by other groups. The situation among Negroes calling for special consideration is the degree to which the social and economic dislocations influence them. The Office of Education conducted the survey in the belief that improved programs of vocational education and guidance were among the best approaches to a solution of the problems. Among the major problems which characterize the occupational situation among Negroes today are the following: (1) their lack of integration into the new occupations growing out of the technological advance; (2) a decrease in their numbers engaged in occupations which they traditionally held; (3) inadequate educational opportunities to prepare them effectively to cope with their difficulties; (4) the reluctance of most of the employers on the one hand to open up occupational opportunities to them, and of the white employees on the other hand to recognize the right of Negroes to enjoy the full benefits of the American labor movement; and (5) a pathetic complacency on the part of many Negroes themselves to the growing seriousness of their situation.

During the past five years there has been more interest in and concern for the occupational problems of Negroes than for many previous years. Educational and civic organizations have discussed the problems; programs of study have been revised; counseling has been introduced in schools and social agencies; and conferences have been conducted. The depression undoubtedly had something to do with this development, but much of the interest may be attributed to the survey, the major purpose of which was to ascertain the facilities for vocational education and guidance of Negroes, and to evaluate the implications of the findings for a revised educational program in terms of the interests and needs of Negroes.

This statement was prepared by Ambrose Caliver of the Office of Education.

University Research Project.—Among the relief projects supported by the W.P.A. and administered by the U. S. Office of Education during 1937 and 1938, one had as its immediate objective the carrying out of coöperative research projects in education by universities where competent relief workers were available. These projects covered a wide range from nursery schools to unit costs of university instruction. The Office proposed a list of studies to each university in the United States which has a well organized graduate school. Sixty-five universities accepted and carried to completion one or more of the projects proposed, or some other study which they wished to substitute for those proposed. Each investigation was carried on by more than one university. The one dealing with student mortality was participated in by twenty-five universities, and that concerned with the economic status of college alumni, by thirty-one universities.

Through this coöperative research project, three things are believed to have been demonstrated:

1. Many educational problems can be attacked effectively only when several universities engage in the project, because the data available at any one university are not adequate to answer the question at issue.

2. Universities welcome the opportunity to work coöperatively on such studies.

3. The services of the Office of Education as a research agency can be utilized very effectively when coöperating with universities where research workers are being trained, and where the materials of research are near at hand.

There was one limitation which appeared in several universities. The relief workers assigned to the investigations were not always as well qualified as they should have been. This was to be expected in view of the exacting nature of the work, but it is believed that the careful supervision given by the responsible professor in each case assured the trustworthiness of the results.

The project is suggestive of possible ways in which the universities might coöperate in their regular research programs, thus avoiding unnecessary duplication, and assuring comparability of findings among the institutions dealing with common problems.

This report was prepared by Fred J. Kelly of the Office of Education.

Recent Developments in Education by Radio.—The trend of rapid increase in interest and activity by school systems and colleges in radio continues. More than 4,000 groups in school systems and colleges report radio activities either on local stations or by use of public address systems. These figures come from the Educational Radio Script Exchange, established by the Office of Education. Most of these groups have turned to the Exchange for loan of scripts or for information. The measure of increase in interest represented by this figure can be judged by the fact that less than 400 such school or college radio groups could be located three years ago. It is apparent that local stations are turning more and more to schools and colleges for radio programs and that these institutions, with local civic theaters, are becoming a major source of local sustaining programs. Training for radio is on the increase. The number of colleges reporting courses in radio this year is 360; last year the figure was 310.

Other recent trends in education by radio are of interest. CBS and NBC have encouraged most of their affiliated stations to establish educational directors. A number of state departments of

education have approved the Columbia School of the Air for state-wide listening. To provide a clearing house for information on radio, a monthly Service Bulletin has been launched by the Federal Radio Education Committee. Vigorous support of the FREC by the National Association of Broadcasters resulted in a broadening of the research program on problems confronting radio.

Time available on networks has become more widely sold, with the result that network educational programs have decreased in number but have improved in quality. Publication of more printed aids for the radio listener has pointed toward closer partnership of radio and print in the service of education. During the last year, the *Americans All—Immigrants All* series, presented by the Office of Education and CBS, received awards as the outstanding radio program from both the Women's National Radio Committee and the Women's Auxiliary of the American Legion.

Approval of a code for broadcasters by the National Association of Broadcasters marked an important step in crystalizing the policies of radio stations with respect to education and other public interest programs.

The Committee on Scientific Aids to Learning has prepared a number of important publications giving guidance to school administrators on problems of equipment and organization for radio. Use of transcribed programs is becoming a livelier issue. The Office of Education has experienced a strong demand for the recordings of *Americans All—Immigrants All* in both 16" and 12" sizes. More school systems are establishing radio directors. There is reason to believe that, within the next ten years, the position of radio director for a school system will be as common as the art or music director is today. We may also anticipate a swift expansion in training for radio and an increase in the production of local programs under school and college auspices.

This information was provided by W. D. Boutwell of the Office of Education.

Home and Family Living.—A joint project on curriculum problems in education for home and family living is being sponsored by the Department of Home Economics of the National Education Association, the Society for Curriculum Study, and the United States Office of Education. The committee in charge has had two meetings, at which a tentative outline of the publication was drawn up and certain steps taken for the collection of material. The major purpose is to prepare a statement of situations and problems facing the individual at various levels in the field of home and family living; to describe practices of promise in schools and colleges, and with youth and adult groups in which the schools participate; and to develop suggestions for planning curriculum experiences in this area. Publication is planned for January, 1941.

Carnegie Foundation. — The Carnegie Foundation for the Advancement of Teaching has issued the *Thirty-Fourth Annual Report* of the president and of the treasurer for the year ending June 30, 1939. The Report discusses the operation of thirty-one research projects at a cost, during the fiscal year 1938-39, of $91,350. The coöperative arrangement between Carnegie Corporation of New York and the Carnegie Foundation for the Advancement of Teaching respecting projects in the field of higher education has now been in effect for about fifteen years. Its success has been virtually unqualified. A series of 148 grants totaling $1,449,392 have been made by the Corporation for eighty-five projects, of which fourteen

involving thirty-four grants, have been carried on in the offices of the Foundation, and seventy-one projects involving $1,087,350 in 114 grants have been carried on under the auspices of forty-one other educational institutions or bodies. To these the Foundation has allocated and transmitted the funds provided by the Corporation. On account of three projects which could not be carried out as planned, $25,000 was returned to Carnegie Corporation of New York through the Foundation. The total of projects effective over the past fifteen years is therefore eighty-two. On June 30, 1939, the Carnegie Foundation for the Advancement of Teaching had resources of $26,917,932. During the preceding year the Foundation received $998,714 as income from securities. It disbursed $1,963,279 on account of retiring allowances and widows pensions, $61,898 for studies conducted in its Division of Educational Enquiry, and $91,350 on grants for special research projects carried forward at American universities and by various bodies and associations.

Commonwealth Fund, 1939.—The Twenty-first annual report of the Commonwealth Fund covers in detail its year of work in the areas of public health and health studies, rural hospitals, contributions to medical education and research, contributions to psychology and mental hygiene, the Commonwealth Fund fellowships, legal research, and publications.

"Appropriations for the year 1938-1939 totaled $1,919,908.73. This total is smaller than that for the preceding year. The Fund's income was also reduced for this period, but comparisons are misleading because of the considerable variation from year to year in the commitments against future income which are included in current appropriations. These commitments also lessen the significance of the comparisons which may be drawn between allocations to one field of work or another in successive years. About two-thirds of the total appropriations made in 1938-1939 were for the promotion of health through medical education, medical research, public health, and the rural hospital program."

Commission on Teacher Education.—A series of state-wide programs designed to contribute to the improvement of teacher education throughout the United States will be initiated in New York, Michigan, and Georgia. These studies are to be undertaken immediately with the support of the Commission, made possible by a special grant of $168,000 received from the General Education Board. They will represent an additional step in the Commission's program for the coöperative improvement of teacher education. The decision to allocate funds for the conduct of the studies followed the request of educators in the various states calling attention to particular problems and together offering a diverse approach to the national problem itself. In each instance a representative group of educators within the state will plan and supervise the program.

The New York program will be sponsored by the Association of the Colleges and Universities of the State of New York and carried out under a committee headed by Edmund E. Day, President of Cornell University. Dean Howard E. B. Speight of Swarthmore College has been appointed coördinating officer. Special attention will be given to problems resulting from the recent Regents' Inquiry into the character and cost of public education in New York and new educational requirements for elementary and secondary school teachers, in each case calling for an additional year of instruction.

In Michigan the recent enactment of a law giving the Board of Education complete control of the certification of teachers makes the study unusually timely. The work will be sponsored by a special committee appointed by the State Department of Education, with Eugene B. Elliott, Superintendent of Public Instruction, as chairman. H. L. Turner, formerly of the Michigan State Normal College, has been appointed coördinating director.

The Georgia study, sponsored by the State Education Department's Advisory Committee on Teacher Education and Curriculum, will be under a special committee headed by M. E. Thompson, State Director of Teacher Education. It will place particular emphasis on the development of leadership for improving teacher education with respect to child growth and development. Two-thirds of the expenditure will be devoted to study of the needs of white teachers and one-third to those of Negroes.

The Director of the Commission on Teacher Education, of the American Council on Education, is Karl W. Bigelow.

Teacher Examination Service.—A description of the purpose and organization of the Service was published in the February, 1940, *Journal*. Examinations in English and reasoning, general culture, professional information, and contemporary affairs are required of all candidates. In addition, each candidate takes certain examinations to show mastery of the subjects he plans to teach.

Among the contributions made by the Teacher Examination Service, two deserve special emphasis. The first is that this service makes available a more comprehensive and, it is believed, more valid series of examinations, designed especially for teachers, than any heretofore available. The examinations, which are completely objective, are based on a careful study of the best methods of selecting teachers now in use and of the nature of the courses in the best teacher training institutions. The items in the tests were tried out experimentally and the provisional test units were submitted for criticism to authorities before they were used.

The second main contribution of the service is that it places one of the most important aspects of teacher selection on a comparable basis. Standards in teacher training institutions vary so widely that marks obtained in courses may have little real meaning. Scores assigned on the basis of tests constructed by local school systems are in no wise comparable from city to city and do not help a school system determine whether or not it is obtaining well-prepared teachers, as compared with the country as a whole. These new examinations, however, show the placement of each candidate on the basis of national norms for each test. Thus, the results are evaluated on exactly the same basis, regardless of whether the examinations are taken in New England or in California, or whether the candidates were trained in a leading university or in an obscure normal school.

It is obvious that the Teacher Examination Service has certain limitations. Emphasis should be placed on the fact that no attempt is made to do the whole job of teacher selection through these tests. Their sole purpose is to provide comparable data on the intelligence, cultural background, awareness of current social problems, professional educational information, and knowledge of academic subjects possessed by teachers and prospective teachers. The criterion of their validity is not whether these tests meas-

ure teaching ability directly, for it is recognized that they do not do so. The pertinent question is whether they measure something that is an important aspect of teaching ability, and it is believed that the answer is an affirmative one. A useful analogy may be drawn from the field of health. Many extremely healthy persons would not make good teachers, yet it is generally agreed that good health is one of the first considerations in the selection of a teacher. Similarly, not everyone who scores high on these tests will be a successful teacher, but it is logical to hold that in general a higher level of teaching efficiency will be attained by those who score high in the important areas measured by the tests than by those who score low. The factors contributing to teaching success are many, and no single evaluating procedure can ever be expected to cover all of them. Rather, various factors must be evaluated separately, and the findings for each individual brought together and studied by the local school in relation to the particular position that is to be filled.

Some persons may stress the fact that the tests do not include the arts and the "intangibles" of personality as greatly limiting their usefulness. It is believed, however, in view of the experimental nature of even the best measuring instruments produced in these fields thus far, that the committee has wisely avoided the raising of false hopes in the minds of school people which might attend an attempt to place measurement in these areas on a service basis at the present time. Needless to say, all new experimental work in measurement in these and other fields will be examined with interest and great care, with a view to extending the scope of the examinations as soon as the possibility of valid and reliable measurement of the so-called "imponderables" has been demonstrated. In the meantime, concrete suggestions for extending the tests to other fields will be welcomed by the committee.

In the planning of the Teacher Examination Service, care has been used to safeguard the local autonomy of every school. No attempt is made to exercise central control of the selection of teachers or to determine how much weight, if any, shall be given to the results of the examinations. It is expected that each coöperating school will use the results of the examination along with an oral interview, a study of the candidate's record, and other data, in the manner that best suits its own situation.

This evaluation of the possibilities of the Examination Service was prepared by Ben D. Wood, who is in active charge of the project.

Reading in General Education.—A description of *Reading in General Education,* the report of a committee of the American Council on Education, under the chairmanship of W. S. Gray of the University of Chicago, appeared in the October, 1939, number of the *Journal.* From the point of view of the chairman, the chief contributions are:

1. A restatement of the nature and function of reading in terms of possible contributions to personal development, scholastic attainment, and social progress.

2. A summation and interpretation of the results of scientific studies and of expert opinion concerning reading at the secondary and college levels. The report serves, therefore, as a valuable source of information for those interested in reading problems at these levels.

3. A statement of problems meriting further study. The report may be thought of as a point of departure, therefore, for further work in this field.

The chief limitations of the report are:

1. Failure to summarize current pro-

grams of reading instruction in secondary schools in as much detail as desirable, due to lack of space and inability to secure a satisfactory analysis of same.

2. A limited amount of emphasis on specific methods and devices. The purpose of the report was to identify major problems and issues rather than to serve as a manual of directions.

Junior Colleges.—The American Association of Junior Colleges has received a grant of $25,000 from the General Education Board to finance a series of exploratory studies in the general field of terminal education in the junior college. The 575 junior colleges have an enrollment of 196,510. The majority of the students enrolled in these institutions do not continue their formal education after leaving the junior college. The new study will be concerned particularly with courses and curriculums of a semi-professional and cultural character designed to give this increasing body of young people greater economic competence and civic responsibility. There is increasing evidence that existing four-year colleges and universities are not organized adequately to meet the needs of a large part of this significant group. It is anticipated that the exploratory study will reveal the need and the opportunity for a series of additional studies and experimental investigations and demonstrations which may cover several years of continuous effort. Immediate responsibility for the project is vested in an executive committee consisting of Rosco C. Ingalls, Chairman, Doak S. Campbell, and Byron S. Hollinshead. The Director of the study is Walter C. Eells, Executive Secretary of the American Association of Junior Colleges, Washington, D. C.

Modern Languages. — The Committee on Modern Languages of the American Council on Education suffered on August 8, 1939, a severe loss in the sudden death of Professor Algernon Coleman, who had been one of the most active contributors to its work of research and experimentation. Otherwise the membership of the Committee remains the same as in the preceding year.

In 1938-39 the Committee carried on the following projects in the field of the teaching of English to students of other speech:

1. A survey of organization and materials for teaching English to Spanish-speaking students. This was concluded and a report, *The Teaching of English in the Southwestern States,* is now ready for press and will be published early in 1940 by the American Council on Education.

2. *A Study of Standardized Word Lists for the Teaching of English to Foreign Students,* by Charles C. Fries. This has also been concluded and the report will also be published by the American Council early in 1940.

3. Conclusion of arrangements for revision of the *Interim Report on Vocabulary Selection* (London, 1935). This is now in progress under the direction of Michael West at the London Institute of Education, which will also publish the revised report.

In the foreign languages, the Committee has carried on the following projects:

1. Continuation of the French Syntax Count, directed for some years by Professor Coleman and now under the general supervision of Hayward Keniston of the University of Chicago. It is expected that the count will be completed and the materials ready for publication by June 1, 1940.

2. The Frequency Count of German Syntax under the direction of E. W.

Bagster-Collins is still in progress and will probably be completed in 1941.

3. Continuation of collections of material for a third volume of the *Analytical Bibliography of Modern Language Teaching* (1938-43), carried on by Clara Breslove King at the University of Chicago under the direction of Professor Coleman.

4. An experiment in prognosis testing for modern language study, under the direction of V. A. C. Henmon. The administration of the program has been concluded and a report on the results of testing will be ready in the spring of 1940.

During the fiscal year, the Committee published and distributed gratis *An Analytical Bibliography of Modern Language Teaching, II*, 1932-37 (University of Chicago Press).

The Committee now has in press for publication early in 1940 *A Semantic Frequency List for English, French, German and Spanish* by Helen S. Eaton, a further development of the "Comparative Frequency List" based on the first thousand words in these languages, published by the Committee, 1934 (*Experiments and Studies in Modern Language Teaching*). This is a pioneer effort to determine the steps common to the four languages on a scale of frequency, and is the result of almost a decade of effort, for which financial support has been given by the International Auxiliary Language Association.

The Committee will undertake in the spring of 1940 an exploratory survey looking toward a technical inquiry into the organization, methods, and results, as measured by tests, of the teaching of English in Puerto Rico.

The chairman of the Committee is R. H. Fife of Columbia University, who prepared this progress report.

Review of Educational Research.—The February issue of the *Review of Educational Research*, dealing with "The Social Background of Education," under the chairmanship of Edmund deS. Brunner, marks the beginning of the fourth cycle of the *Review*, and with it the adoption of a new list of fifteen topics for the cycle.

The *Review*, begun in January, 1931, followed the initial list of fifteen topics through three cycles (of three years each) with little change. Two years ago the Editorial Board revised the topics with a view to organizing the material in certain areas around more natural points of interest. New topics include the following: language arts, physical and mental health, social studies, natural sciences and mathematics, fine and applied arts, special education, and general aspects of instruction. No material formerly covered has been eliminated, but much of it has been shifted.

The editor of the *Review* is Douglas E. Scates of Duke University.

The complete list of topics adopted for the fourth cycle (1940-1942), with the dates of issue, is as follows:

Social Background of Education, February, 1940.
Language Arts, April, 1940.
Teacher Personnel, June, 1940.
School Organization and Administration, October, 1940.
Physical and Mental Health, December, 1940.
Psychological Tests and Their Uses, February, 1941.
Finance and Business Administration, April, 1941.
Special Education, June, 1941.
Fine and Applied Arts, October, 1941.
Social Studies, October, 1941.
Growth and Development, December, 1941.

School Plant and Equipment, February, 1942.

Pupil Personnel, Guidance, and Counseling, April, 1942.

General Aspects of Instruction: Learning, Teaching, and the Curriculum, June, 1942.

The Natural Sciences and Mathematics, October, 1942.

Methods of Research and Appraisal in Education, December, 1942.

Stanford University Studies.—A research project has been conducted for the last four years with the assistance of workers from the rolls of the Works Progress Administration, and with the aid of funds supplied by organizations interested in social science investigation. Studies so far conducted have been concerned with occupations in relation to the program in vocational training and to the political behavior of occupational groups. A first report was published in 1937 by the Stanford University Press with the title of *Occupational Mobility in an American Community*. A second report on *National Occupational Trends* is now in press, and a third on *California Occupational Trends* is in process of preparation. A study of the registration and voting behavior of a county electorate is approaching completion, as well as a new occupational classification scheme based on rates of pay. These studies are believed to report data of basic importance to the determination of programs in vocational training and guidance, and in citizenship training. The work is under the direction of Percy E. Davidson, with the active collaboration of H. Dewey Anderson. Working quarters are provided by the University.

The Stanford Social Education Investigation is a three-year study involving the coöperation of teachers in a selected group of schools located in different western states. The cities coöperating include Denver, Seattle, Eugene, Los Angeles, Long Beach, Pasadena, Redwood City, Fortuna, Salt Lake City, and the Menlo School and Junior College. The study, under the direction of Grayson Kefauver and I. James Quillen, is developmental in nature, in that the staff members collaborate in studying the possibilities in the coöperating schools and in developing a program in harmony with the conceptions thus defined. The central staff of the project includes, in addition to the directors, Robert Bush, Matthew Evans, Lavone Hanna, Carlton Jenkins, and Edward Krug, who are making such supporting studies as are needed by the participating teachers. The entire group comes together for four weeks in the summer to review and evaluate the developments and to plan future activities. The participants in the project are making an effort to formulate and to put into practice an effective program of social education. The practices developed will be described and evaluated in so far as evaluation techniques can be developed. There is freedom for each school staff to build a program in harmony with its past thinking. No effort is made to secure acceptance on the part of everyone of a preconceived plan. This project is being carried forward with the support of funds from the General Education Board.

The Stanford Language Arts Investigation, initiated in 1937, represents a coöperative effort of teachers in a selected group of schools and members of the central staff of the project. The investigation has been carried forward under the direction of Walter V. Kaulfers, Grayson N. Kefauver, and Holland D. Roberts. Other members of the staff during the current year include Ruth Meyer, Leif Thorne-Thomsen, George Murphy, and Don Karshner. The cities

coöperating in the study include Seattle, Sacramento, San Francisco, San Mateo, Santa Barbara, San Jose, Santa Maria, Los Angeles, Phoenix, Mesa, and the Menlo School and Junior College. The conception of the investigation calls for coöperative planning and the development of a program in the different schools in harmony with the plans made by each faculty group. The programs in the schools vary greatly in emphasis. At the close of the project there will be descriptions and attempts at evaluation of the materials and procedures which have been developed. Attention has been given to the place of reading in the secondary school, the integration of English with foreign language, and English and foreign language with the social studies, the use of the radio, the use of foreign cultural and language instruction, interpretation in language and literature, and social education through literature and language instruction and interpretation. This project is being carried forward with the support of funds from the General Education Board. Further information concerning certain aspects of the program may be obtained from the monograph, *A Cultural Basis for the Language Arts*, prepared by Professors Kaulfers and Roberts.

Yale Institute of Human Relations.—The reorganization and research program of the Institute are described in the *Report of the Director of the Institute of Human Relations for the Academic Years 1937-38 and 1938-39*. The close of the academic year 1938-39 marked the end of the first decade of the Institute. In the final years of this period a program of future research was developed, the administrative relations to schools and departments of the University were redefined, and financial support for the future was sought. This work began in the spring of 1935 when the present director, Mark A. May, was appointed, and is recorded in part in his three previous annual reports. The most important event of the biennium occurred in April, 1938, when the Rockefeller Foundation, after a careful survey of the past accomplishments and future potentialities, voted a total sum of $700,000 toward the support of the research program for a second period of ten years.

According to the *Report*, the field of human relations is so broad, its problems are so numerous, and the methods of attack so varied, that some plan of procedure is necessary to avoid the waste and inefficiency that come through the dissipation of effort. The program which has been outlined is fixed only with respect to its major purposes and objects of study; it remains flexible in terms of methods, projects, and particular problems of investigation. The general objective, that of aiding in the development of a unified science of human interaction, is stated in previous reports together with the main lines of scientific inquiry that the Institute is attempting to follow. One of the major problems is to discover how the human organism acquires an equipment of habits that enables it not only to adapt itself successfully to physical environment, but also to function efficiently and satisfactorily in the society of which it is a part. The center of gravity of the program is the study of the individual in his social setting. This involves a study not only of the socialization of biological organisms, but also of the society and culture in which it takes place.

The Graduate School.—At New York University in 1939 Byrne J. Horton completed a doctorate dissertation on "The Origin of the Graduate School and the Development of Its Administration." This study is devoted to the unfolding of those experiences which enter into the

organization of the graduate schools of those universities that are members of the Association of American Universities. By a graduate school is meant that organized educational unit in a university which is devoted to the acquiring, preserving, and disseminating of advanced knowledge, distinguished from other educational organizations by its emphasis upon the advancement of knowledge through research, its evaluation, and application.

Methods and Technique of Procedure.—This study is the result of a long period of reading and studying in a number of libraries. A more direct attack on the problem was made by going through the *Journals* of Proceedings and Addresses of the Association of American Universities, and yearbooks of organizations and societies devoted to higher education. In general, the material that was scrutinized consisted of charters of the various institutions, their statutes and by-laws, the reports of the presidents and graduate deans, bulletins, catalogues, and such other material as was available under other titles relating to the institution. One source of information was the minutes of the graduate school administrative committees or of the Graduate Council of the several schools studied. Investigating source material is essential to any historical study. However, it was felt that the real spirit behind these documents could be better appreciated if, in addition, time could be spent in the very atmosphere were these documents originated. Hence, as a supplementary measure, approximately six months were spent in institutional visitation and study.

Conclusions.—This study has traced the steps which made for organized research in an institution known in Europe as the university and in America as the graduate school. The period preceding the organization of Johns Hopkins University may be regarded as the missionary period while the half century following the establishment of Johns Hopkins University in 1876 was the formative period in which the graduate school became an established research organism in the realm of higher education in the United States. We are now entering into a third period which may be thought of as one of evaluation and progress. But progress which departs from well-established and tested basic principles is likely to bring intellectual chaos and retardation.

This study offers concrete evidence that the American people are sufficiently open-minded to accept ideas of other lands that have merit and which are not opposed to the American philosophy of democracy. We may take it for granted that the American university is here to stay. The American system of higher education is the college-university type of organization. Although the advocates of the graduate school were sincere in their desire to promote research, the degree of Doctor of Philosophy became the end in view on the part of graduate students who needed such a degree in their profession. The majority of the criticism leveled against the graduate school may, to a large measure, be traced to the weakness of the seminar courses and the seminar techniques. The work of research can never be left to the student alone. The principles of methodical study must be inculcated. This is a by-product of the seminar, its major objective being the discovery of truth. The graduate school is to be judged by the extent and the fullness with which this ideal is brought into active reality by both the professor and the student. The criterion of the usefulness of the graduate school is the extent and fullness of its services to its own groups, to society in general, and to

the moral and intellectual progress of its own constituency.

Stated more specifically, this study:

1. Establishes continuity of events in the history of the graduate school.
2. Establishes historically the real function of the graduate school.
3. Identifies the graduate school with the faculty of philosophy.
4. Traces the evolution of a systematic effort to organize graduate schools in America. Three distinct stages are discernible; namely,
   a. institutions established essentially as graduate schools
   b. institutions where undergraduate and graduate schools were established simultaneously
   c. the college-university pattern
5. Presents evidence that the establishment of the graduate school in America was the result of meticulous study of the best practices in Europe and America.
6. Publishes for the first time the original manuscript, in photostatic fashion, the first draft for the organization of the first graduate school in America.
7. Establishes the evolution and the true meaning and purpose of the official workshop of the graduate school.
8. Points out present-day problems.

Scholarships and Fellowships.—At the University of California in 1938 Aaron Eugene Jones completed a doctorate study on "The Control and Administration of Scholarships and Fellowships in Universities of the Association of American Universities." The purpose of the study was to determine and evaluate the restrictive and regulative factors under which scholarships and fellowships are available, awarded, and held in schools of arts and sciences of the Association of American Universities.

The official publications of the universities name 190 criteria for undergraduate and 163 for graduate awards. Those most frequently mentioned are scholastic ability, character, promise, and need. Financial need is a major criterion in selecting undergraduate recipients, but it is of considerably less importance for graduate awards.

The number of different items of information requested on the scholarship and fellowship application forms evidence that there is no agreement among the universities as to what information is important in the selection of scholars and fellows.

There is need for research to determine better methods of selecting applicants for awards, since present methods are subjective and unscientific.

Most awards are made for one year only, but they may be renewed upon application. The conditions for renewal or continuation are similar to those for the first award.

The usual plan of organization for administration of awards is to have a committee on undergraduate awards and another committee for the graduate schools. In a few schools, however, committees within each department administer the awards. Deans of colleges and other administrative officers whose regular duties relate to student welfare are usually members of the awards committees. Attempts have been made with much success to have selection of scholars and fellows made by the universities at a uniform time.

The restrictions placed upon the awards by donors prove to be a serious problem in the control of scholarships and fellowships.

Some of the schools make awards which are not otherwise restricted—"open awards" to be held by capable students in any department. The purposes for supporting scholarships and fellowships

seem to be: (1) to attract outstanding students, (2) to bestow distinction upon high scholarship, (3) to serve society by solving its problems and making discoveries, and (4) to upgrade the educational output of the university.

Many foundations, councils, and associations support scholarships and fellowships in American and foreign universities, the majority of these awards being for post-doctoral research.

If the criteria for the selection of scholars were simplified and if high school students were better informed concerning them, awards might be a strong motivation for increased efforts on the part of students.

Officials administering awards seem satisfied with the criteria and the means of applying these criteria in the selection of applicants. They desire more awards with stipends varying according to the needs of the recipients.

Sixteen criteria for evaluation of the scholarship and fellowship programs were evolved and applied to the findings.

Wellesley Institute.—"Building Democracy" is the theme of the Summer Institute for Social Progress to be held July 6-20 on the country campus of Wellesley College, Wellesley, Mass. Lectures and discussions will deal with economic and political issues. The Institute is open to men and women of all vocations. Peter H. Odegard, Professor of Politics at Amherst College, is faculty head. Henry E. Warren, President of Warren Telechron Company, is the elected head of the Institute. The program may be secured from Dorothy P. Hill, Director, Wellesley, Mass.

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